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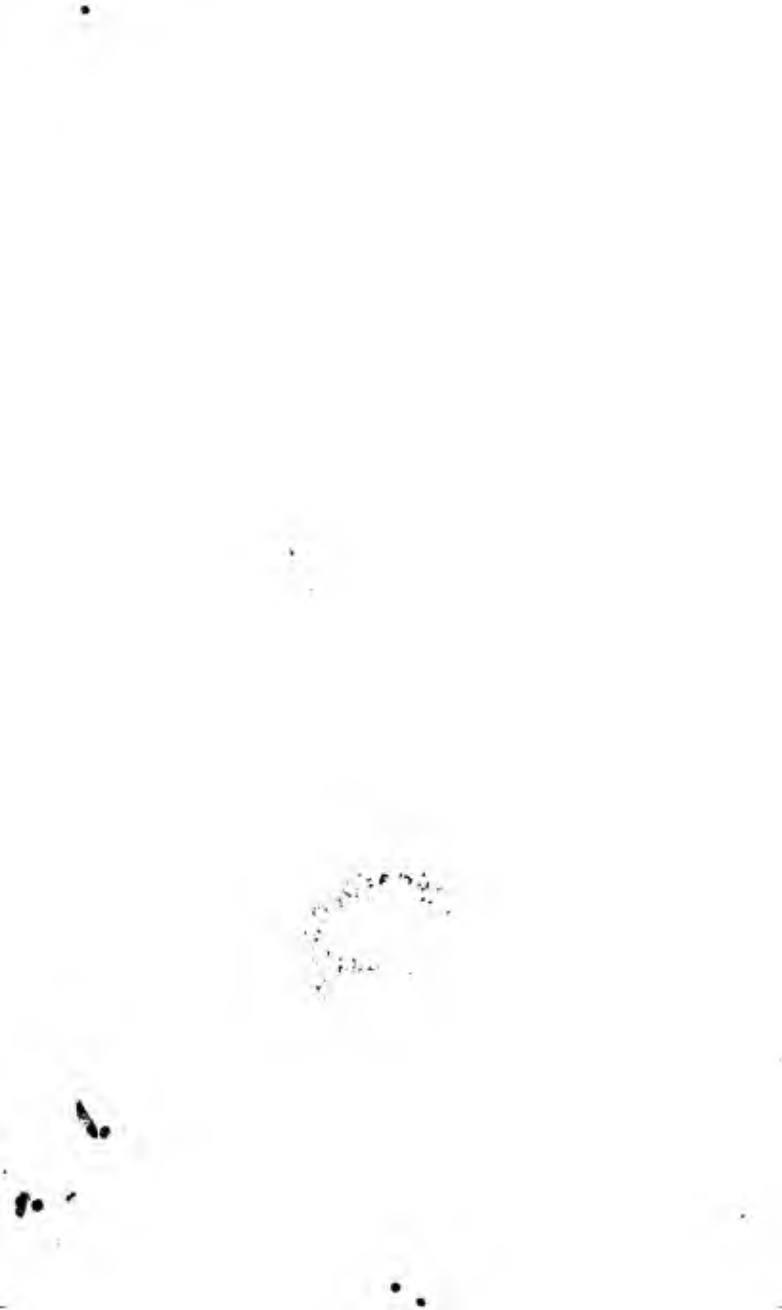
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AN INTRODUCTION TO
LIBRARY CLASSIFICATION



AN INTRODUCTION TO LIBRARY CLASSIFICATION

THEORETICAL, HISTORICAL AND PRACTICAL
WITH READINGS, EXERCISES
AND EXAMINATION PAPERS

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TO
THE HEROIC MEMORY OF
MY TWO OLD STUDENTS AND FRIENDS
HENRY W. CHECKETTS & ERIC A. PEPPIETTE
WHO DIED FOR ENGLAND
"SOMEWHERE IN FRANCE"
1916

Don't know how to get it out of the box

PREFACE

FROM the first this little book was intended to be a series of lessons for students working for the Library Association Examinations and, by inference, for the similar Examination for the Diploma of the University of London School of Librarianship. It was also hoped that it would prove to be rather more than a "cram" book to be discarded, with all further interest in the subject, when the examination was over. That purpose and hope remain.

The sections of the L.A. Examination that involve our subject are:

- (a). *Entrance Examination* (in which it is a half of one of four $1\frac{1}{2}$ -hour papers):

CLASSIFICATION AND CATALOGUING. In Cataloguing candidates will be expected to understand the principles governing the use and purpose of author and subject entries, and the differences between main and added entries, the difference between *see* and *see also* references and the meaning of *Description*; in *Classification* they will be expected to understand the way in which the books and other material in their libraries have been grouped. No detailed knowledge of cataloguing codes or classification schemes will be required for this examination.

- (b). *Registration Examination*: Group A is *Classification and Cataloguing*, which consists of three 3-hour papers: (i) Classification; (ii) Cataloguing; (iii) Practical Classification and Cataloguing.

(i) *Classification*: The principles of classification, the making of a classification for books; the Dewey, Library of Congress, Bliss, Universal Decimal, and Brown schemes of classification.

(iii) *Practical Classification and Cataloguing*: Practical examples will be set, to be both classified and catalogued (in accordance with the Anglo-American Cataloguing Rules). Students will be examined in classification in one of the schemes according to choice: Dewey's

Decimal Classification (13th or 14th editions), the Library of Congress Classification, and Brown's Subject Classification. Each candidate will be required to provide for his own use a copy of the classification scheme in which he wishes to be examined, of *Cataloguing Rules: author and title entries* (the Anglo-American Code), and of either Sears and Monro's *List of Subject Headings for Small Libraries*, or the Library of Congress's *Subject Headings used in the Dictionary Catalogue*.

(c). *Final Examination: Part 4 (2), Classification and Cataloguing.*

(1) *Classification* (one 3-hour paper): The theory of classification. History of bibliographical classification with special reference to the period 1876 to date: main schemes, their development and principles. Practice of classification in general and research libraries. Methods of compiling schemes for particular purposes. The limits and problems of classification. The planning and working of a classification department and its relations with cataloguing. Codes. Application to material other than books. Guiding and display. Punched cards and other mechanical aids in connexion with classification and cataloguing.

The syllabus is published in the excellent *Students' Handbook*, issued by the Association. It is rather formidable and there is no doubt that the student who has encountered the Final successfully in this subject may claim to be reasonably expert. This book gives indications of most of the problems involved in the study to that grade but, clearly, *practical* familiarity with schemes and much wider reading are required for the Final stage. The third paper is a test in classing actual books; its linking to cataloguing is gratifying; the work of both classing and cataloguing is usually, but not always, done by the same librarian.

For this edition there has been conservative revision; but I am aware that there was never so much work done in classification as in the past ten years, and that it is still going on. So much so, that every book on the subject may be said to be outmoded in some particular almost before it is published. Since my last edition the surprising

Fifteenth Edition of Dewey has appeared, 1951. Bliss has completed his monumental Bibliographic Classification, 1953, and Ranganathan has reached a Fourth, 1953, and promises a Fifth edition of Colon Classification, has written his *Philosophy of Classification*, 1951, edited *Depth Classification*, 1953, and he and his disciples continue to pour out article on article on some phase or other of the subject. No text-book could keep up with them; but, so far as his methods are concerned, Bernard I. Palmer and A. J. Wells have produced a description of them in *The Fundamentals of Library Classification*, 1951, which will repay reading after this one. A series of articles on the scientific theory of classification began to appear in the *Journal of Documentation* in 1950 from the pen of J. E. L. Farradane; the scheme is obviously inspired by Ranganathan although it has strong differences. There have been valuable articles on recent studies by J. Mills, L. A. Burgess, J. D. Stewart, A. J. Wells, and, as classification affects indexing, by Brian C. Vickery. All these, however, go somewhat beyond the stage of study to be expected from beginners, and many of them are more concerned with all-comprehensive notations as well as minute discriminating, arranging and numbering of subjects for indexing and filing rather than with shelf classification. I have incorporated some of the more useful terms of the modernists. Some, unfortunately, have other associations than with classification. Vickery gives a list of many of them in *Depth Classification*.¹

For the student who desires to pursue various subjects further I have written *A Manual of Classification*, in which certain subjects, especially accounts of the major schemes, are carried as far as the ordinary librarian may need. The 1944 edition (and its reprints) is that quoted in this book.

I have not dealt with the theories enunciated by Dr. E. A. Savage in his *Manual of Library Classification and Book Display*. I do not think they will displace for long, if ever, the theories of Richardson, Bliss and Ranganathan, but

¹ Ed. by S. R. Ranganathan, 1953, Univ. of Delhi.

they are a stimulating challenge to the advanced student. A similar comment may be made of a different book, A. Broadfield's attack on all theories and schemes; his *Philosophy of Classification*, 1946. The beginner might do well to postpone these until he is able, from knowledge of the commonly held principles, to read them critically. Then he will enjoy them both.

I could never have prepared my early lessons without the secretarial work of the late Henry A. Twort which used up his scanty leisure after the long hours we worked in 1910. I owe much to Henry A. Sharp and to D. Howard Halliday. The late Dr. Samuel Clement Bradford provided me with the excellent chapter on the Universal Decimal Classification. His *Documentation* (Crosby Lockwood, 1948), and his abridged *Universal Decimal Classification* (British Standards Institution, 1948), are a legacy of the last year of an industrious and gifted life largely devoted in its leisure to the subject and are the best books in English on his themes. Chapter XVI I owe to Bernard I. Palmer and Appendix I to A. J. Wells. The most cursory reading will show my debt to Henry Evelyn Bliss and to S. R. Ranganathan; and, if the reader will examine my bibliography, he will see the names there of these, and most of my other creditors—except those of the hundreds of students who have worked with me in this subject and, in learning a little, I hope, from me, have taught me much.

W. C. B. S.

Croydon, 1954.

FOR THE BEGINNER.

I. Miss Margaret Mann, in her *Introduction to Classification and Cataloguing*, has a useful chapter on "How to Read Technically," in which she shows that in order to understand a book from a library point of view, we must examine how it is made up physically, its title, half-title, dedication, contents-list, preface, index and other features. Each of these can yield to the cataloguer something and, taken together, they enable a rapid decision as to the place of the book in literature. Of these things, it seems to me the one part of a book that a librarian must read is the preface.

II. Nevertheless, if you are already a library assistant, you may omit this preface. Here I want to address the quite new-comer to our work.

III. Assuming, then, that you have not worked in a library and have never used one except casually, ask yourself: What does a librarian mean by a library? You may quote with confidence Dr. Temple's statement that it is a repository of books, as representing the outside viewpoint; but to the librarian it is a systematic collection of books, made as useful as possible by the various guides that he provides.

IV. I overheard a man complaining of the cost of his public librarian, whose job, he alleged "had nothing in it; anyone could do *that* work." Although a layman, his hearer reached the heart of the problem, in a question: "Have you noticed, when you ask for a particular book, that the librarian can go straight to the shelf where it is? How does he do that?" "Oh, I suppose he puts them in order on the shelves." "Yes, but what order? Could we do it?" "I don't know; I've never tried; but it ought to be easy enough." That sums up the average approach

to the subject. When you enter a large library you will meet with hundreds of shelves, and may experience some feeling of bewilderment. With a little patience this can be overcome. You see that the bookcases are of a similar height and the shelves of uniform length. Over the bookcases you see guides which tell you that this case is 100 Philosophy, that 400 Language, and so on. A closer view will probably show that each bay of shelves (by which is meant a set of shelves usually three feet long, arranged in tiers one above the other—librarians have got into the habit of calling a bay *a tier*) has a guide, showing, for example, that on the various shelves are:

- 400 Language. General
- 410 Comparative Philology
- 420 English Philology

and some go even into finer detail, as

- 420 English Philology
- 421 Orthography
- 422 Etymology
- 423 Dictionaries
- 424 Synonyms
- 425 Grammar
- 426 Prosody
- 427 Dialects
- 428 School books. Texts
- 429 Anglo-Saxon

Along the edges of the shelves you may see guides (or labels) showing where the books actually stand; thus:

425 ENGLISH GRAMMAR	426 ENGLISH PROSODY
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Look at the books themselves. On the back of each is a number, written sometimes as a fraction, as you see is the case on Morris's *Primer of English Grammar*; thus:

425
—
MOR

V. By this time you will have recognized that the books are arranged by their subjects, and in the main that is so. The large guide-notices show that all the books fall into one of ten (or it may be twenty) Main Classes, such as

000	General Works
100	Philosophy
200	Religion
300	Sociology
400	Philology
500	Science
600	Useful Arts
700	Fine Arts
800	Literature
900	History

and that each main class is divided, as

010	Bibliography
020	Library economy
030	General cyclopedias
040	General collected essays
050	General periodicals
	etc.

and these are again sub-divided, as

021	Scope, usefulness and founding
022	Buildings
023	Government and Service
024	Rules for readers
025	Administration. Departments
	etc.

and this sub-division continues even further. You will also notice that the numbers on these labels and on the books are the numbers of *subjects*, not of books. Thus, in the

mark for Morris's *Primer* $\frac{425}{\text{MOR}}$ the number stands for

English grammar, and all English grammars bear that number. The letters will be seen to be the first three letters of the author's name, and are a useful sign which enables all books marked 425 to be rapidly sub-arranged by authors' names.

VI. To enable you to discover the whereabouts of any subject, there are probably other guides. Sometimes there is a *plan* of the bookshelves hung in a conspicuous position which shows where the main classes are. Some libraries have the plan in a printed form for every reader to have a copy. All libraries have a *catalogue*; this may be printed as a book, or it may be a card catalogue, arranged usually in a cabinet, in which there is a card for every book-entry, or it may be a sheaf catalogue, in which a sheet is usually given to each book-entry, and all the sheets are held in a sort of loose-leaf binder. Against all entries will be found the *class-marks* (or class-numbers) for the books they represent. Many libraries, too, have a *shelf register*, which is a list of all the books in the order in which they stand on the shelves. The catalogues are usually for public use; the shelf register for the use of the staff.

VII. This library is a classified one, and the books on the shelves are arranged according to a classification scheme. If the numbers I have shown are used, it is classified by the Decimal Classification known familiarly to librarians as Dewey, after the name of its compiler. This is one of the most popular of several schemes for arranging the books in libraries. These schemes are rather complicated in construction but are simple to use. The library reader rarely learns how they are made, but he does learn fairly easily how to use catalogues and lists, to find the subject numbers, and to go straight to those numbers on the shelves. The librarian has a more difficult task. It is to do these things:

1. To discern what his books are about.
2. To fit them into their places in the classification scheme.
3. To catalogue them so that they can be found if we know their authors or subjects.
4. To guide us to the subjects in catalogues and on the shelves.

To do this his education must be adequate; classification has been described by Professor E. C. Richardson as the

highest art of the librarian. To recognize what a book is about and its place in knowledge is not child's play; most failures in classification spring from lack of knowledge. The librarian must know his scheme of classification thoroughly. This he can do best if he has learned why classification is done and what are its effects; how the classification-maker constructs his scheme; and what rules and methods the librarian must observe in classing books by it. These considerations have led to such courses in classification as that which this book attempts to provide. To some they are a wearisome, dull study; to others they are courses in mental and practical training of real profit. The former will tell you solemnly that classification theory and practice are merely soulless technique, attention to which will prevent that devotion to literature and the arts and sciences which is justly due; the latter know that they add greatly to library interest and efficiency. It is also a curious fact that most of the great classifiers have been intense lovers of letters. A true librarian is such a lover, but one with technical efficiency; and there can be no others.

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INTRODUCTION

I. Early in the century, as a student, I attended lectures by L. Stanley Jast at the London School of Economics, in which in an arresting manner he instilled into us the principles of classification. For me this course was a lamp in cimmerian darkness, and, like several later students, I was fired with enthusiasm, and began to pass on the light as I had received it to my fellows. Two years later, in 1907, I read a paper on "Some Principles of Classification" to the Library Assistants' Association, a subject which was described by W. Benson Thorne as a *terra incognita* to most library assistants. This phrase by an auditory error the Editor of *The Library Assistant* reported as "a terror" to them. Indeed, until then a terror it was; we had groped about painfully to understand why men made classifications or how they did it. In the same year I had put together a series of rules, which I called "canons," and applied these with some rigour to Brown's *Subject Classification*, which had appeared in 1906, in a paper I inflicted upon the Library Association. The meeting must have been patient indeed, for my study ran to nearly 7,000 words. The canons were meant, as I then wrote, "merely to place the criticism of classification upon a scientific and logical basis, and I am of opinion that . . . they will form a sufficient basis for future and better schemes of criticism." The term "canons" was of definite value as it focused attention on central principles, but with time and further study one saw that some of them could not be sustained. Those which can be retained in this *Introduction*.

II. In 1910, James Duff Brown, who had written to tell me that my study of his work was "thorough and on the whole quite sound," persuaded me to undertake for the Library Association the first correspondence course in classification in this country. It was a formidable job,

lightened by what I had learned from Jast. Two textbooks only were to be found. The first was Brown's *Manual of Library Classification* (1898), which reappeared as the second part of his *Library Cataloguing and Classification* (1912), a pioneer work for young students, founded on the chapter on "classificatory systems" in the second volume of Edward Edwards's *Memoirs of Libraries*, with a good chapter on the relations between classification and cataloguing, but without any theory worth record. The other was E. C. Richardson's *Classification Theoretical and Practical: together with an appendix containing an essay towards a bibliographical history of systems of classification* (1901; ed. 3, 1930), a work for which I have still high regard on account of its method, style and splendid bibliography. Neither seemed to me to be exactly a textbook as I understood it, and I therefore tried to write my lessons. Every fortnight I sent to my students the equivalent of a chapter, and that explains the form this *Introduction to Classification* takes. Experience made me revise it yearly, and when the stress of teaching by correspondence was in danger of becoming a whole-time employment, I thought students would be served best by publication.

III. I had already satisfied myself by actual teaching that some definite drill in the classing of books was required, and for students who had passed through a theoretical course I prepared and published *A Short Course in Practical Classification* in 1913. This, revised and amended, was incorporated into the second edition of this *Introduction*. Since then I have revised it frequently, and have worked through the book with scores of students. In general it has answered its modest purpose, which was to give methods for the applying of actual classification to books. In revising this in the present edition I have, for the sake of users of earlier editions, retained most of the old examples. *The intention, as the exercises set at the end of each chapter show, is that this part of the work shall be used from the first day of study, the student working out the Short Series of*

Exercises on General Rules while he is mastering Part I, and then proceeding to the study class by class of the Decimal Scheme. The D.C. has been chosen for this purpose, because it is the most used and most accessible of the schemes, and because in using it most of the general problems of classing are encountered. An admirable contribution to this subject appeared in 1928, in William Stetson Merrill's *Code for Classifiers*, which was amplified in 1939, a work which gives a considered judgment on difficulties encountered by the classifier. I have occasionally availed myself of this work, but my intention is not so much to deal with particular points, as to give a general method from which the treatment of particular points may be inferred.

IV. What this work owes to others can be judged from the dates of publication of the works included in the Bibliography at the end; I was merely the first to summarize the material in a way that saves time and makes teaching and learning less formidable than it was in my own student days. My classification theory was quite simple. The order which philosophers, scientists or valid systematic thinkers had discovered in things is the basis of book classification, with such artificial auxiliaries as places for composite books, for literary works whose form is more interesting than their subjects—poetry, drama, essays, etc.—and with practical apparatus for recording and finding in the shape of indexes and notations. This statement has made me the target of some criticism which may or may not be justified. The point is simple: no one, not even the so often quoted classifiers at the Library of Congress, arranges books without some preconceived order as a guide; to do so is a logical impossibility. If, then, there is a preconceived order, that will necessarily be an order which is the result of thought, be a mental scheme good or bad, and consequently what I call a philosophical scheme. I am quite aware of the importance of order. The question of the *right order* is a later study about which a few words are said in paragraph 20.1, and is a theme for such elaborate treatises as Henry

Evelyn Bliss's two volumes on *The Organization of Knowledge*.¹

V. The beginner should be aware of this controversy; more advanced students may follow it profitably in the writings of the master-classifier, Bliss, and elsewhere. At present the position is this: Knowledge is not static; it advances. Any general scheme of classification is therefore required to advance with it for the simple reason that no scheme, by whatever means contrived, can fix permanently the relationships of All-Knowledge. Nevertheless, even in general schemes, there can be a certain enduring quality because changes brought about by the progress of thought, and every human activity in science and in living, are only very rarely likely to alter the main divisions of Knowledge as the library classificationist understands them; changes are frequent enough, however, in the sub-divisions of subjects and every general library classification of value to-day, that is to say used in an organized library, is able to accommodate such changes and, in its structure if not in its details, anticipates them. This fact, that main classes do not change, because the great subjects as a whole do not, is recognized even by the distinguished Indian classificationist, Ranganathan in his Colon Classification, which has fixed main classes, and in his more recent researches he is moving towards the discovery of what he calls primordial classes which I understand to be classes which are fundamental and may change only in details.

General classifications, devised for the arrangement of books in a public, university or other library or book collection not limited to one subject, which are equipped with a notation, and are printed as wholes, have lately been called *Enumerative* schemes or systems. This is unfortunate, as Bliss suggests: "There is no such thing as enumerative classification. Classification does not enumerate. In inventory, in statistics, in accounting, there may be classified

¹ *The Organization of Knowledge and the System of the Sciences*, 1929; *The Organization of Knowledge in Libraries and the Subject Approach to Books*, 1933. Bliss has applied his theories in his *Bibliographic Classification*—as described in section 164. (All N.Y.: H. W. Wilson Co.)

enumeration . . . but in classification the only kind of enumeration that obtains is the counting of details, and that is another procedure superposed on, but not implied in, classification. What 'enumeration' really means in these recent writings is 'serial classification.'¹

Such "enumerative" schemes, however named, are those most in use, and it is imperative, indeed, that most of us use them as their makers have devised them. This *Introduction* is largely the outcome of a study of existing enumerative schemes and is intended to show how they came to be, what rules governed their making, and how they have developed and are applied in libraries. Confusion may arise in your mind from the claims made (and probably justly) for what are called self-perpetuating schemes which to-day are mainly associated with the name of S. R. Ranganathan and are explained clearly and usefully by Bernard I. Palmer and A. J. Wells in Chapter XVI and Appendix I of this book, as well as in their very interesting little treatise, *The Fundamentals of Library Classification*, 1951; but it remains the fact that for some years to come, it may be for many years, general libraries, especially large ones, must be arranged by what may vulgarly be called ready-made schemes. These briefly consist of: an arrangement of Knowledge in a number of self-contained and mutually exclusive general classes, each of which is divided in a graduated series of divisions, which are re-divided in turn until the whole of the subjects in the class are arranged in order from the main subject to its most minute parts. Every term receives a number, or sign, called its notation, which fixes its place in the order and is used as the symbol of the term; and, in addition to the schedule so made, all the terms, each with its number, are entered alphabetically in an index. The result is an ordered system of Knowledge. How this occurs is our primary subject.

Of course, the making of such a classification scheme is according to rules, or principles, or "canons" as I once

¹ Bliss, *Bibliographic Classification*, vol. iii, Intro., p. 6.

called them. There are such rules propounded by Richardson in his *Classification, theoretical and practical*, by Bliss in his *Organization of Knowledge in Libraries*, and Ranganathan in his *Prolegomena to Classification* has twenty-eight of them. This formidable array need not deter the student. They are all attempts to create a method of making a classification which will make books and other material available most usefully to their users. What we do expect of a classification is that *it will work*. This it will do, so long as it is:

1. Comprehensive of All-Knowledge or, if it is the classification of a special subject, that part of Knowledge with which it is concerned.
2. Is in a consistent, recognizable order.
3. Is as minute a statement of things as is possible.
4. Is flexible enough both in its classes and in its notation to accommodate the changes in thought, and in literature which is their reflection, without dislocating the rest of the classification.
5. Is, therefore, equipped with a simple notation which is flexible.
6. Has a full index.

VI. What a class is, terms and their division and all the formal apparatus of every act of classification are a part of classical logic with which all formal text-books of that subject deal. There are few text-books so clear *for our special purpose* as Jevons's three books, his *Primer of Logic*, *Elementary Lessons in Logic* and his *Principles of Science*. Jevons is said by the moderns to be out-moded; even Bliss thinks him not basic to library classification, but I feel that there is no real issue between him and me; his theme is order; mine classification mechanics; the latter must be by extension and intension, and this is fundamental to Jevons. At the same time, for the modern student of the mental sciences, except in the mechanical processes I have in mind, Jevons may, indeed, be no longer current. He is clarity itself; one cannot be the worse, and may be much the better, for reading him.

VII. Our path will be freed from a number of difficulties if a few simple definitions are understood throughout. First, there is the term *classification* itself, which is now used indifferently for several processes. Its simplest meaning is that process of the mind by which qualities in things are abstracted and the things are grouped by these qualities into classes; but conventionally it is now used for:

1. The mental process of recognition and grouping—which is its meaning in logic, and the correct one.
2. The act of arranging groups, or classes, in some order—this, strictly, is *classifying*.
3. The written or printed lists of the terms of a *classification scheme*—which, more correctly, should be called the *schedules of a classification*.
4. The act, or art, of determining the place in which a thing (object, idea, book, literary piece, etc.) should go in a classification scheme; this, strictly, is *classing*.

All these processes—classification, classifying and classing—are commonly called classification and a particular set of schedules is called a classification (as, for example, Dewey's Decimal "Classification"). Some confusion has arisen from this lack of precision, but convention is probably stronger than we can overcome in the matter.¹ I have always used classification for 1-3 and classifying or classing for 4.

VIII. There is naturally pre-occupation with the schemes most in use at present; so much so, that the student is sometimes advised to disregard the history of classification which one writer declares to be "a manufactured subject." The criticism is without point as all research carried out by scholars becomes creative and is therefore "manufactured." A useful guide encourages the student to ignore the relation of the Dewey Classification to the Baconian Chart which is the only explanation of its often criticized order. I think no apology is needed for the

¹ See Bliss. *Organization of Knowledge and the System of the Sciences*, Chapter VIII, etc., and *Organization of Knowledge in Libraries and the Subject Approach to Books*, pp. 17, 115, etc., for the best discussion of these distinctions.

historical part of this book except that which every writer makes for his own inadequacy. The approach it suggests to our study is likely to lead to a deeper, more informed, and therefore more useful knowledge of the half-dozen systems that now prevail.

IX. SUMMARY. The work sets out in the first part the purpose and uses of classification, expounds very simply the principles from formal logic according to which schemes can be made, and sets out the parts of a library classification.

The second part outlines the history of the various schemes that have been proposed, in accordance with the author's view that the best approach to modern schemes is through a knowledge of the circumstances in which they were developed.

The third part deals with practice, the application of a scheme, the rules of classifying, and such vital matters as the classified catalogue, book-display, etc.

The fourth part is a series of graduated exercises, meant to be used with the book throughout, forming a course in practical classification based upon the Dewey classification.

These remain unaltered in this edition. The book is used by students in classes and older editions may in this matter be used with this. It is doubtful if more recent titles would prove to be more adequate.

Text-books only assist in the making of a classifier. The practical working of examples, the pursuit of the readings laid down, and a careful watch upon the references to classification in current library treatises and journals are essential to success in these difficult days.



"We have in that town a civic library, and its keepers, on request, always know where to find what to me is lost, and sometimes is what I did not know existed. To my constant surprise, they will go direct to the knowledge I lack. They seem to think it their duty to give to school-children and authors alike the means to help themselves in that little matter of ignorance. I suppose a librarian must have some insight into the secret of the widow's cruse, which replenished miraculously however much was taken from it. His ministration has the nature of a religious rite; and for that reason, I fancy, he should never enter the temple at all unless aware that he is the keeper of something which, if lost, would leave us all in the darkness."—H. M. TOMLINSON.

PART I THEORY

CHAPTER I

THE PURPOSE AND EFFECTS OF CLASSIFICATION

1. The word classification comes from the Latin *classis*, a term used in ancient Rome to distinguish any one of the six orders or classes into which the people were grouped according to their wealth and importance. There have been many variations of the meaning of the word *class* since Roman times, but our meaning to-day resembles the original one. To us a class is an assembly of things, which are bound together by a quality, or property, which every member of the assembly possesses. For example, all men are linked by the qualities of mammalian structure, erect gait and reason. That is one grouping. They can also be grouped by colour, by race, by their national distribution, the colour of their eyes, hair, and by several other qualities. Any group so made would be a class. This applies to all things. The mention of the name of a thing brings to the mind of any one who knows it the idea of a class. A doll, for example, is immediately related to the class toys, a buttercup to flowers, a periodical to a class of literary product appearing in some serial order, and so on. All names, then, are *class* names, or terms, and a class can consist of one or of many things. One-thing classes are rare enough, but they exist, otherwise the term applied to a man: "he is in a class by himself," is nonsense—as, indeed, in a biological sense it is—but it is not nonsense in the ordinary conversational exchanges of life.

We can sort things into classes by any principle (or characteristic) we please, to serve the ends we have in view. That is to say, we can arrange by what is most

convenient or useful to us. Thus, a greengrocer may arrange oranges by size, quality or place of origin, as he finds most profitable; a printer may arrange books by type, a binder by their coverings or the sewing methods used in them, the bookseller by rarity, price or appearance, and the librarian by size, period, form, authors' names, subject-matter, or what not.

The classes so made are arranged to form larger classes, and these into yet larger ones, until all the things we have to classify are covered in one large classification.

When the librarian uses the word "classification" he means the work of sorting and arranging the material—books, manuscripts, documents, maps, prints—with which he has to deal. His primary business is to select and collect books and other printed and graphic records for the use of others; and he is successful if he is able to marshal this material so effectively that it can be placed before his readers in the least possible time. In short, to save the time of readers in their pursuit of knowledge, information and even amusement, is his ultimate work as a librarian. In doing this he will find scope for all his qualities and qualifications.

2. Nothing can be more confusing than a disorderly, unrelated mass of books, unless it is a mass of pamphlets, cuttings, prints, photographs and the other ana of civilized life. Anyone who has tried to find something in the lumber room of a library which has been merely a place where things are collected in the hope that some day someone will arrange them, understands the waste of effort and the futility involved in disorder. It is to bring system out of the confusion of things that classification has been devised. In the realm of knowledge, it is essential; some sciences have progressed as the knowledge of their arrangement has progressed, as in the discovery and understanding of the chemical elements by their classification, and as in botany by plant arrangement; insomuch that they are known as the classificatory sciences. In libraries much the same effects follow the same causes. The quantity

of literary matter in existence reaches astronomical figures, and unless it is arranged the loss is immeasurable. We have had evidence of men spending years over a problem, the solution of which, unknown to them, had already been published by other workers; it had not been recorded and related to other books and papers in any classified bibliography. So far as world literature is concerned, the problem is only partly solved, and may never be solved completely, although the great national libraries, international and national societies, and such organizations as the *Fédération Internationale de Documentation*, and the various library associations are endeavouring towards it. We should know of the problem, even at this stage, but the average librarian is more likely to encounter the problem only as it occurs in a library small or large. Here it can be illustrated by the simple demand of a reader for "all the books you have on the French Revolution, or Social Credit, or Technocracy." If the library where it is made is unclassified, the librarian proceeds to consult his lists, discovers the whereabouts of the necessarily scattered books on the wanted subject and brings them together. This is an act of classing, this assembling of books alike in subject. If the collection is large this must take some time on the part of the librarian and mean delay for the inquirer. And when the reader has finished, the librarian proceeds to declassify them. The waste of time involved is so apparent that one marvels that anyone could not have perceived the saving of it that would have occurred if the books had been kept permanently in the groups in which the reader needed them. Such was the case, however, and even to this day there are those who think that the broadest arrangement of books on shelves is enough and that detailed arrangement should be limited to catalogues.

3. Classification brings together things which resemble each other and separates those that differ. When librarians speak of it they have in mind the arrangement of books

in the manner in which the reader is likely to think of them, or at least to require them. This may be in one of many ways, such by the form of the books, or their date, place of origin, printer, material, type, illustrations, language, rarity, purpose or some other quality; but generally when speaking of library classification, they are thinking of an arrangement of books and other matter by the subjects about which they are written. It will be found, later, that all books cannot be arranged by subject, but sixty per cent of them can; and it is by subjects rather than by the names of authors that readers of non-fiction mostly require their books.

This subject arrangement has definite uses for the librarian. By it he is able to make his stock balanced or representative of the subjects; or at any rate to be aware that it is or is not so. In passing, it may be said that a library cannot always be representative of all subjects, as in some cases it may not have readers for certain subjects; but a balanced collection that is reasonably representative is the ideal for the general library serving readers who have no other adequate accessible library facilities. Classification, then, assists the librarian to select books for his stock with method. As a consequence, he is able to remove from his stock works which are obsolete or have been superseded; to perform the process called "weeding out." In both cases, it is assumed that books on a given subject are side by side on his shelves, and this proximity is his guide. It is true that unless he knows books, he can neither add to nor take from the shelves efficiently. Classification can only enable him to use effectively and quickly knowledge which he already possesses.

4. Another advantage of a classified library is the speed with which its resources can be catalogued for the reader who wants a reading list on his subject. As we shall see later, the modern library has usually some sort of classified catalogue in which entries of the books are arranged in the order of subjects. To copy the entries on the required

subject is a rapid mechanical process. Even if the classified catalogue is wanting, so long as the books are in subject order on the shelves, the making of a list of those required is a simple matter, which may be contrasted with the task of making such a list from a miscellaneous, unclassified collection of (say) 10,000 volumes. The applications of this idea are many. Catalogues can be published a class or less at a time, which is impossible with any other than a classified catalogue; and those classes in which most new books are added or weeded out can be revised without the expense of reprinting the whole catalogue.

5. A classified open shelf library, because it is in a systematic order, is to a certain extent self-explanatory. By means of well-devised guides and labels, aided by catalogues and indexes to the classification, a reader for most ordinary purposes can find what he seeks without personal assistance. From such shelves definite occasional exhibitions of books can easily be made. In a later chapter the question of book-display is considered. Book-display is a function of classification. When a subject has a temporary popular interest, or when the librarian desires to push it vigorously, the books on it are lifted from their sequence in the classification and are shown on special shelves or stands. It is easy to do this when the library is classified, and book-displays of this and other kinds have been made in libraries for many years and much attention is given to them in the modern library. Clearly, without classified collections from which to make them much time would be lost.

6. What has been said has indicated that library classification takes two forms: (1) the arrangement of books on the shelves, and (2) the arrangement of entries of books in a catalogue or bibliography. These may be distinguished as (1) *shelf or bibliothecal classification*, and (2) *bibliographical classification*, although the last term really includes both species, and *catalogue classification* would be a more precise term for the second of them. A book can

go in only one place on shelves, and this fact is the basis of most criticisms of classification as a library tool by those who have not fully considered that while "one book, one place" is the only possible shelf method, in the catalogue entries of it may be made in as many places as are needed to index it fully. An additional advantage of shelf and catalogue classification together is that they allow the analysis of books. A book dealing with several subjects, receives an entry under each of those subjects in our catalogue, referring the reader to the shelf-place of the book. These added entries are called references or cross-references.

7. The use of a classification that is well known and widely used enables co-operation between all the libraries using it. Decisions as to the placing of certain books can be made by consultation, and the catalogues and lists issued by one library are more useful to other libraries classified by the same scheme than to those which are not. For example, the useful reading courses issued by the Leeds Public Libraries are actually placed before readers in other libraries having similar methods. The student new to the subject will infer, what is the fact, that there are standard schemes of library classification, published and accessible, and used in several libraries or in a few very important ones. The schemes best known to British librarians are the Decimal Classification of Melvil Dewey, the Expansive Classification of G. A. Cutter, and the Library of Congress Classification. Less known but likely to be known better, is the system of Bibliographic Classification of H. E. Bliss. All these are American in origin. The Classification Décimale of the Institut International de Documentation, commonly called the International Classification, came from Brussels with help from many countries. It is based upon, and adapts and develops, the Dewey scheme. Brown's Subject Classification is British. Latest in the list and, at present, most discussed of all because of certain methods of classing associated with it is the Indian scheme, the Colon Classification of

S. R. Ranganathan. There are many others which have been applied, but these we have named will form the main themes of the second part of this book. In order to appreciate the qualities of these and to apply them correctly, or, if he is impelled to the laborious work, to make a scheme of his own, the librarian should understand what a classification is, to what material it may be applied, how it is constructed, and its limitations. The rules and principles involved are the matter of this text-book.

8. In the first place, however, it is allowable to indicate what is meant by rules and principles. Library classification is one application of the theory of classification which forms a chapter in every text-book of logic, but, let it be admitted at once, the classification theory we find in logic is only part of library classification. In logic we learn that classification is the mental process by which we distinguish the likenesses and differences in things, find their relationships, and make groups or classes of them according to those relationships. Classification is part as it were of the mechanics of thought; the art of sorting things into order. All that is proposed here is to show the methods which may lead to practical and convenient sorting of *books*. There are admirable works on classification which are concerned almost entirely with the question of the right or best *order*; i.e., what is order, and the best order for a library classification? Is there an order in nature, what is it, is it evolutionary, involutionary, genetic, genealogical or what? Should a library classification follow any of these? These questions are important; their solution may rightly be said to lead to the making of principles of classification.¹ By principles here, however, I mean the working of the logical machinery by which a scheme is made. It can be affirmed that in the past the librarian has taken the schemes of the philosophers and scientists and has fitted books into them;

¹ They are developed diversely in Richardson's *Classification* and Bliss's *Organization of Knowledge*.

he has used the order provided for him and has sometimes modified it to suit his needs. This point is developed and modified later in Section 16.

The remainder of this chapter will be a brief summary of the essentials of the classifying process which will be developed in the chapters that follow.

9. *Classification is a process of the mind by which things are arranged according to their degrees of likeness and separated according to their degrees of unlikeness.* It is a mental process because any arrangement we make of actual objects must be according to ideas already existing in the mind; we make or adopt an order and fit the objects into it. By *thing* we mean anything that has being, and being means anything material or immaterial, physical or mental, which has had, has, or may have existence. All these things are capable of being expressed in the form of literature or pictorially, and therefore can be classified. By *likeness* we mean some quality which is possessed by several things and unites them, as colour, size, luminosity, opacity, etc., each of which unites a whole series of things, and therefore makes a group or class of them. If, for example, we make a group of opaque things, the arrangement within the group will be according to the amount or degree of opacity which the things present.

10. *Likeness governs classification and the likeness we choose we call the characteristic of classification.* What is the likeness? When we say that things are alike we do not mean that they are alike in every particular. Absolute likeness means likeness in form, material and in the position occupied in space; and clearly no two things can occupy the same space. Absolute likeness is identity, the thing itself; the only thing absolutely like the pen with which I write is that pen itself. But such fine distinctions, although they have value in thought, do not bother us seriously. Two things have "likeness" when they may be substituted for one another, as spare parts in popular makes of motor car, tyres, etc. Then when we speak of "degrees of likeness" we mean that near to each of the things that

have likeness there stand things almost like them; as, for example, the carburettor of a Ford car is more like that of any other make of car than it is like any other object. The example is a rough one, but it is the term carburettor that conveys to us an exclusive set of qualities which are possessed by no other object. It is a term for a class of things. As in the example just given, we seek in all things the qualities which they have in common—the possession of the spinal column in vertebrate animals, of reason in man, of vessels and cells in flowering plants, of exchange value in coins. We have here for each a characteristic by which the members composing a great group are brought together. In the vertebrates, that characteristic is the backbone, in man reason, and so on. All these things could have been assembled by other characteristics—as man by colour, flowering plants by the soil in which they grow or by their season for blooming, and coins by the metal of which they are made. The point is that in order to classify any series of things we must choose *one* likeness or characteristic and adhere to it until we have included in the class all the things. Only when this is done can we sub-divide the class so assembled by another characteristic, if the subject admits of it, and this new characteristic must in its turn be adhered to consistently.

11. *Characteristics may be artificial or natural, but it is necessary that those chosen as the basis of division should be the most convenient for the purpose in view.* This was called by Stanley Jast the rule of the essential characteristic, and the term is convenient. It is quite simple, and means that we can choose any reasonable method of arrangement so long as it is the most useful for the users of the things we are to arrange. We may say that the classification of animals may be by the foods they eat, by their structure, their size, their environment, their habits, their uses, or any other characteristic which they may have in common, so long as that characteristic brings out the facts about them which are required. Needless to say, those characteristics

are not necessarily inherent, natural or artificial, but from our point of view they are right if they are more convenient than any other. We say, then, that *the characteristic chosen as the basis of arrangement must be essential to the purpose of the classification*. A characteristic is a natural one when it is based upon a consideration of all of the qualities in the things to be classified; in most things on the likeness that they have in structure and in function. A characteristic is artificial when it is based upon some partial or accidental quality or qualities; in most things on their mere appearances. We shall develop this later, but at the outset we may say that either natural or artificial characteristics may prove to be the more useful. Either, then, may be the essential characteristic, because—to repeat—*essential means only the most useful*.

12. *Characteristics must be used consistently*.¹ We can group things by several characteristics, as we have seen, but by only one at a time. It is obvious that if we choose the characteristic of structure to arrange and to separate plants we shall create mere confusion if we try in the sequence to divide by size or colour or season. Of course, when we have *exhausted* our sub-division and reached individual plants, we can re-divide the individuals by colour, but we cannot do it both by colour and by (say) chemical composition. As Jevons shows,² it would be "obviously absurd to divide books into folio, quarto, French, German and dictionaries." The fault here shown is called cross-division and is one of the worst in classification as it puts into several places objects which are alike and should therefore be together. In a book classification we can lay out our main divisions by one chosen characteristic only; we can divide each main division,

¹ This rule of consistency has caused some puzzlement to at least one critic who has recently tacked on to the Rule 4 in section 19 below the words: "at each step of the classification," which, of course, is so sensible that I had not thought anyone would need to make it a part of a rule, especially as it is explained in the very next sentence.

² *Elementary Lessons*, p. 104. The 1925 reprint is quoted.

if the material requires it, by another characteristic; and each division by yet another; but in none of these can we employ two or more together. It follows, then that a book classification employs in turn many characteristics; for example, in Dewey's Literature class the whole is divided first by Language, then by the Form in which the works are presented, as poetry, drama, fiction, etc., and then by the Dates of the individual authors. But each characteristic is exhausted before another is introduced.

13. *A classification is a statement, in TERMS, of the field of knowledge, or of a part of it.* This follows to some extent from what has gone before, but it clarifies matters if we say that classification is a schedule, list, or map of the field of knowledge. The schedule is not graphic but verbal; it consists of words or names; these words are *the terms of the classification*. A term is a single word, or sentence, which stands for an idea, or for a part of the field. Carlyle has said that true knowledge consists in giving right names to things. The maker of a classification must discover the best and most *unequivocal* names to give to every class, division and sub-division in his scheme. He takes the whole field and first divides it into a number of broad convenient areas, which he calls his *main classes*. The terms he gives to these must be comprehensive, that is to say, must cover all the things in the class, and all the terms of the classes added together must be equal to the whole field of knowledge to be covered. Any great classification demonstrates this; the terms of the main classes of Dewey—Philosophy, Religion, Sociology, Language, Science, Useful Arts, Fine Arts and History—in sum are equal to universal knowledge. They illustrate all our rules. Mind is the characteristic that makes the Philosophy class, God is the characteristic of the Religion class, the community of men that of the Sociology class, and so on. Each of the classes, too (except where the sub-division is faulty), excludes everything that is not covered by its term.

The main classes so made do indeed group broad tracts of knowledge, but they must be divided in order to be of real use. The classifier takes each term and divides that into a number of convenient sub-groups, in book classification, called *divisions*, which again added together are equal to the term divided. These division terms are themselves in turn divided into sub-divisions and the sub-divisions may be divided into sections, which again may be divided until such division becomes impossible or unnecessary. Thus a classification consists of:

Main classes.
 Divisions.
 Sub-divisions.
 Sections.
 Sub-sections,
 etc.

Bliss¹ prefers this terminology for the same process:

Main classes.
 Sub-classes.
 Sections.
 Sub-sections

14. This process illustrates the rule: *A classification begins with terms of great extension and small intension and proceeds to terms of great intension and small extension.* The term used as the name of a main class is one that covers a wide field, a great number of things. Its compass is its *extension*. Such a term as Philosophy has great extension. *Intension* on the other hand signifies meaning; the broader a class heading, the fewer are the attributes that can be predicated of it; or the greater the extension the smaller its intension. Ethics, which is a division of philosophy, is a term of great extension too, but has very much greater intension, or can be defined more easily. Sobriety is a division of Ethics, but is of much less extension and of much greater intension; Abstinence has still further reduced extension and increased intension, and Total

¹ *Organization of K. in L.* p. 27.

Abstinence is of very small extension and very great intension. Classification moves according to that method. It is the division of a term until all its parts are abstracted, by gradual steps. In other words a class is a *genus* which is divided into its *species* by the addition of minute *differences* at each stage. The words just used are three of the *five predicables* which are a list of attributes that can always be predicated of any subject. The application of the five predicables we shall discuss later and illustrate it by means of the Tree of Porphyry. *Connotation* and *denotation* are terms from formal logic for the same ideas as intension and extension; that is to say, the connotation of a term means the qualities it possesses (its intension), and denotation the individual things which it covers (its extension).

15. *The process of division must be exhaustive.* This means that each subject must be divided, step by step, as minutely as is possible, and, again, that the sum of all the divisions, sub-divisions and sections shall be as complete an analytical statement of the meaning and content of the class term as is possible.

16. *In order to make a classification scheme a practical instrument for the arranging of books, the nature of books themselves must be recognized.* Books are not subjects, but may be statements of subjects. A monograph on Geology is not Geology itself; it is a written account of the ideas and notions which make up Geology. But, if we regard Geology as a genus and analyse it into its species Archæan, Palæozoic, Mesozoic, Cenozoic, Quaternary, etc., we can arrange books which deal with these in the same order in which the geologist arranges his strata. That simple example, however, does not solve the difficulty of the placing of the book which deals not only with Geology, but with several other subjects. There is also the book which deals with one subject from several points of view; and, again, the book which is useful not because of its subject but because of its pattern, as books of essays, works of fiction, and poems. These difficulties led Jevons to assert that "the classification of books is a logical

absurdity." In practice, however, the librarian, as we asserted in paragraph 8, usually *adapts* the knowledge classification to his purpose. That means, he uses the order, which the consensus of opinion amongst scientific and intellectual workers has found most convenient in their studies, as the basis of his classification. He is, however, dealing with books, which have their own form and often a distinctive purpose, insomuch that the knowledge classification must be subjected to many changes to admit places for subjects which though separate—as for example, electricity and magnetism—are thought of and used together. The book classification must also differ from the knowledge classification because of the forms of books, their composite character, shapes, and other qualities which distinguish them from subjects. To differentiate these the classification-maker adds to his scheme special artificial classes and pieces of apparatus which discriminate books as books. These classes are a *Generalia class*, in which are arranged books of the general newspaper or periodical or encyclopædia type which cover all or many parts of knowledge; *Form classes*, of which *Belles Lettres* (called Literature in later schemes) is the example, in which books are arranged by the form or literary pattern in which they are written; *Form Divisions* (or *Common Sub-divisions*) which enable us to show the aspect from which a subject is viewed or the author's method of treatment; and in the final arrangement of some subjects we may use alphabetical, chronological, or some other "not classified" order.

17. (1) To indicate the order of the classification scheme; (2) to fix a term in its place in the scheme; (3) to form a brief means of reference from an alphabetical index of the scheme to the place of a subject in the tables of the scheme; (4) to indicate the place of the book on the shelves, and (5) to enable the subject to be represented by a symbol on the backs of books, on all records of them, in catalogues, etc., *a notation is necessary*. A notation is most familiarly illustrated by the registration

symbols on motor cars, which are "numbers" composed in various ways to represent the district of registration and a particular owner. Similarly, a book-notation is, as it were, a short, or, as Richardson prefers it, a "short-hand," symbol for the name of a term. Such a notation must be brief, simple and indefinitely expansible.

18. *To make reference to the classification rapidly and exhaustively it must be equipped with an index*, which should be an alphabetical list of all the terms in the scheme, together with all synonyms of them. If every aspect and relation of the subjects in the scheme is shown in the index, it is called a *relative index*. Of this kind the index to the Dewey classification was the original and type. An index which gives only one entry for a subject, omitting its relations and aspects, as is the form of the index to Brown's Subject Classification, I have called a *specific index*, although the term is not a good one; *one place index* would be more precise. As we saw in the last paragraph, to each of the terms in the index is added its notation.

19. Thus, briefly, have been set out the main points that have to be remembered in the construction of a classification. The chief *rules of division* may be given in summary form, and it may help matters if they are committed to memory:

1. Division proceeds from terms of great extension and small intension to terms of great intension and small extension.
2. The process must be gradual, each term modulating into the term following it, and the whole perfectly co-ordinated.
3. Characteristics chosen as the basis of division must be essential to the purpose of the classification.
4. Characteristics must be consistent.
5. The terms used must be mutually exclusive.
6. The enumeration of parts must be exhaustive.

20. We may still, however, give a further thought to the question of order in classification. If the purpose of classification is to bring things into groups or classes, there must certainly be some order in the things within the groups. But when they are made, does it matter in what

order the groups themselves are arranged? In the classification of knowledge it matters supremely, for one of the main pursuits of knowledge is to discover the relationships in things and therefore in the greater sciences themselves. The most modern writers, such as H. E. Bliss, pursue this matter at length, but, as we insist throughout, *in book classification* we use the order which is most convenient for the librarian and his readers. Few libraries, it may be said in anticipation, are able to arrange the main classes on their shelves in the strict order in which they appear in the classification; and if the altering of order—called “broken order”—produces more satisfactory results, it should be undertaken. But the librarian must be sure that by “satisfactory results” the pandering to the inertia of certain types of reader is not meant. If the workers in particular fields of thought have arranged their speciality in a given order, would it not be a convenience to them to have all the printed accounts of it in that order? “The order in which readers expect to find books is that in which they should go,” is a sound statement if we have defined “readers.” Is the library for the uninformed reader or for the informed? Much depends upon the answer to this question, but as the trend of the uninformed reader is towards information, and that of the informed is never towards ignorance, it is surely wise to arrange a library for the better type of reader and to encourage the other to learn how and why it is done.

A few librarians, having made their classes, arrange them in alphabetical order. In the London Library the books are arranged on the shelves in some such order as this

Abbeys	Animals
Accidence	Aorta
Agriculture	Aphorisms
Alternating currents	Aquaria
Amphibious Animals	Art
	etc.

(I have exaggerated the method somewhat!) Certainly if groups of books on these subjects are so arranged, a

useful self-indexing purpose is served. Any reader can follow it, and there is a distinct value in the mere grouping. Its fault, as we see it, is that the alphabet brings together unrelated groups and separates related ones. Abbeys have no relation to Accidence, or Accidence to Agriculture; but Abbeys are related to Architecture, Animals to Agriculture, and Aquaria to Amphibious Animals. The loss seems to be greater than the gain. We feel that the order within any main class should be that which the workers in it have determined upon as their standard.

20.1. The study of the best known systems of classification, which forms Part II of this book, shows that order varies according to the theory of knowledge held by the classification-maker as well as by his purpose. One who believes God to be the source of all things would naturally start with God-sciences (or Theology) and work out an order which seems to illustrate the working of His providence in the development of things and human knowledge of them. Several early schemes down to that of the British Museum (section 94 below) some such order prevailed. The purely philosophical view found its most effective example, so far as its influence on literary schemes are concerned, in Francis Bacon's *Chart of Learning* (Section 129) where the order is derived from the working, as he believes it to occur, of the human faculties of Memory, Imagination and Reason. From the middle of the nineteenth century the evolutionary order—that is the order in which things seemed to have appeared in time—was that which generally prevailed. But the great French philosopher, Comte, had already laid down a material arrangement which is more akin to the modern objective “order of the sciences” which runs

Physical Sciences [not having life].

Mathematics, Physics, Chemistry, Astronomy, Geology
Biological [or Life] Sciences.

Biology, Botany, Zoology.

Anthropological Sciences [Science of Man].

Physical Anthropology, Psychology.

Moral Sciences.

This is abridged by the American philosopher Marias Malisoff¹ as Abstract, Natural and Human.

21. Classification, like everything else, has disadvantages as well as merits, and although it is well to know of them, they need not be exaggerated. A quite substantial volume by a good librarian has been devoted to the topic,² which seems to reach to the conclusion that the defects outweigh the values of classification. This is not the place to discuss that contention, but the alleged disadvantages, some of which are very real, may be summarized; they will be dealt with in detail later.

1. Library classification assumes the right arrangement of books to be by subjects, and it is difficult in many books to determine what the subject is.

2. Books are not subjects. A book on a single subject is a complexity of ideas and subjects, in which every chapter, and even paragraph, might be attracted to a different class.

3. A book can go into only one place on the shelves, and, as 1 above implies, not only may that place be chosen badly; all the other subjects in the "book-complexity" must be left over.

4. Moreover, the best writing on a subject (say, gravity) may be in a book which as a whole deals more distinctly with another subject or with many subjects. If, then, the book is classed according to its dominant interest, it is separated from the books on gravity.

5. Again, as Mr. Hawkes has pointed out,³ the Mendelian doctrine may be wholly concerned with sweet peas, primroses or pigs, yet the subject is heredity. The uninformed classifier might place it at any of the three apparent subjects.

6. If subject classification is carried out consistently, such series as the Home University Library will be broken up, although readers know them as a series.

¹ *Meet the Sciences*, 1932, N.Y., Williams & Wilkins.

² Grace O. Kelley. *The Classification of Books*. See also Dr. Kelley's most attractive paper on "Classification of Books in Retrospect and in Prospect", in Randall's *Acquisition and Cataloguing of Books*, 1940, Chicago.

³ In Doubleday's *Primer of Librarianship*, p. 43.

7. Similarly, the collected works of a voluminous author may be separated according to subject, to the detriment of the obvious author-interest.

There are other disadvantages, real and alleged, arising from the construction of the scheme itself. Readers, we know, rarely understand it, the notation is meaningless for them, and so on. Most of those enumerated arise from the confusing of the functions of the catalogue with those of the classification, as we show later. The others must be faced in balancing advantages and disadvantages. Some arise from the fact stated by Jast, that "it is one thing to have a good classification, but another to have a good classifier." *Shelf classification can show a book in one place, at one subject, in one relation, and that only.*

22. READINGS.—The object of the book references in this and similar paragraphs of each of the following chapters is to enable the reader to pursue the themes explained in the chapters, but literature does not exist on every theme that will be treated. It has been thought well to design the readings so that, taken in order, they will form a satisfactory course of classification study, such as should engage the attention of a student for about a year.

If the student has no knowledge of scientific method, a wise beginning may be made by the reading of the definitions under class, classification and cognate words in the *Oxford English Dictionary*, and in Baldwin's *Dictionary of Philosophy*; then some elementary works, such as Huxley's *Introductory*, followed by Jevons's *Logic* (both in Macmillan's Science Primers), and Wolf's *Essentials of Scientific Method* (Allen & Unwin). These will clarify matters considerably. If it is desired to pursue the "logic" of the subject, it can be done in such works as L. S. Stebbing's *Modern Introduction to Logic*, 1930 (Methuen), or M. R. Cohen and Ernest Nagel's *Introduction to Logic and Scientific Method*, 1934 (Routledge), and in many others. On the subject of the foregoing chapter, read:

SAYERS. *Manual of Classification.*

[Preface and Chapter I.]

RICHARDSON. *Classification: Theoretical and practical.*

[Introduction and Lecture I.]

JEVONS. *Elementary Lessons in Logic.*

[Lesson III.]

MANN. *Introduction to Cataloging and Classification.*

[Chapter III, covers subjects in this and next two chapters.]

PHILLIPS. *Primer of Classification.*

[This can be read side by side with this *Introduction*, which it resembles in order.]

SUPPLEMENTARY, ADVANCED READINGS.

BLISS. *Organization of Knowledge in Libraries.*

[Chapters I-II gives its author's version of theory. Somewhat advanced, and will be read with more effect after the above.]

KELLEY, GRACE O. *The Classification of Books.*

[The best case against orthodox classification.]

RANGANATHAN, S. R. *Prolegomena to Classification.*

[A thorough and advanced restatement of classification theory with "canons" extended to 28 in number and readable accounts of schemes other than the "Colon" on which it is focused.]

22.1. QUESTIONS.—The practical exercises in Part IV should be undertaken from the beginning of our study. Presuming that about a week is given to each chapter and its readings, two exercises might well be undertaken weekly, but, of course, students work at varying pace. Before the exercise is begun a careful reading of Chapter XVI is desirable.

Work Exercises I-V of Chapter XX

- (1) What use has a library classification for reader and librarian respectively?
- (2) What is meant by Things?
- (3) What are Characteristics?
- (4) What are Terms?

- (5) Why may a systematic order of classes be better than an alphabetical one?
- (6) What are the advantages and disadvantages of arranging books by authors' names?
- (7) Describe the conditions of a workable classification as laid down in the Introduction to this book.
- (8) What are the chief disadvantages of classification?

CHAPTER II

THE MAKING OF THE SCHEDULE

I. TERMS. PRINCIPLES OF DIVISION

23. The object the student may keep in view is to be able himself to make a classification; not because in practice he will need to make a new one, but because, possessing that ability, he can assess with some assurance the values of the several accepted schemes amongst which he may have to make a choice; and certainly he will apply the scheme he does use with success if he knows how it has been devised. A lesser point, but one of much consequence to my probable reader, is that examiners have a habit of asking such questions as "Construct a classification, with a decimal notation, for the arranging of prints and photographs of a sea-port town," or "Sub-divide Dewey's 381 Domestic Trade and 382 Foreign Trade," or "Prepare a table of common sub-divisions suitable for the detailed arrangement of prints and photographs of churches." All of these are quite reasonable, if difficult, questions, which are impossible for those without correct technique.

24. A schedule of a classification is a written statement of a classification which has already been formed in the mind of its maker. It is, as it were, in the first place a mental map of the whole of knowledge or of some part of it, and this map is transcribed in words or *Terms*. A map, when drawn, is a graphic thing, representing on paper an actual plan, greatly reduced, of a country; but

the field of knowledge cannot for practical use be drawn as a map; it is transcribed in words, which in our ordinary working schemes are written vertically in schedules. Another way of regarding classification is as a tree, the totality of which is knowledge, with a main stem, representing the principle of division selected, which throws off branches which are the main divisions of knowledge, and these branches in turn throw off smaller branches, which in turn throw off their own even smaller ones; and the process is continued to any extent. But we cannot usefully make a working classification in the likeness of a tree; we must reduce it merely to words or terms. Our first business then is to discover what is the field we are to classify, and then to consider how it may be best expressed in terms.

25. What, then, can be classified? Everything that has Being. The metaphysician defines Being as that which has existed, does exist, or may exist. Books can cover the whole realm of ideas. There have existed historic events, exploded theories, the search for the elixir of life, the attempt to square the circle, birds and animals now extinct, and a thousand other "obsolete" matters, and much literature about them exists and must be classified. So much for what has existed. The things that exist are the subject of current observation and speculation and naturally provide much more literature. Things that may exist can certainly not be classified to-day as such, but prophecies of them can and do make literature; and as for such future things themselves, our classification scheme must be so devised that when they do occur they may be fitted in without dislocating the scheme; it must be "expansive and flexible both in plan and notation."¹ These principles are true of both general and special classifications. A *General Classification*, as its name implies, is one that embraces all knowledge, and amongst philosophical classifications, as we shall see, the schemes of Bacon, Coleridge and Spencer, and amongst library classifications those of Bliss, Brown, Dewey and the Library of Congress and most

¹ Margaret Mann.

others, are of this kind. They provide, either immediately or by possible expansion, for every subject and therefore for every book that may occur. A *Special Classification*, as again the name tells us, is one limited in scope to a single subject, or to more than one subject combined for a special purpose; for example, a classification of chemistry, or optics, commerce, law or any other single subject, or for special types of user. But in both forms it must be clear that the classification made must embrace all past, present, and possible knowledge—that is to say, from the library point of view every possible book. It is sometimes urged that this ideal is not practicable, as there are many minute sections of knowledge on which no literature is probable and it is overloading a scheme and confusing to its user to make places, with necessarily extended notations, for these. Such a criticism is often made of the minute places in the Science class in Dewey. A classification, however, is not designed for a library which looks forward to such limitations. Literature on the most minute subjects may not be probable, but is always possible.

26. The plan of the classification-maker is therefore conditioned by the purpose for which he makes his scheme. If it is to include everything in the universe of thought and things, he must plot out what he considers to be the great branches of knowledge, as his first step, and must give each of these a name, or *class-term*. Thus, classifying all the knowledge of his day, Francis Bacon brought it into three groups. These groups were based on the characteristic of the human mental faculties: memory, imagination and reason, to which he applied the terms, history, poesy and philosophy. The terms were terms of great compass, or, as the logician would say, of great extension; there is according to Bacon no knowledge that is not history, or poesy, or philosophy. Each of these he proceeds to divide into major divisions; in Philosophy, for example, into Divine, Natural and Human, and these he re-divides; for example, Natural Philosophy he breaks into Speculative and Operative; Operative into Mechanic

Magic, and Mathematic; Mathematic into Pure and Mixed. James Duff Brown, taking the same general field, chose to make his main groups in a sort of objective evolutionary order. "A sort of" is emphasized. Brown nowhere states the order to be evolutionary, and it does not follow philosophic and scientific ideas of evolution. Brown, however, did use and claimed a development order, and by "evolutionary" we mean "developmental" and nothing else. Starting with Matter and Force we are led to Life, and proceed to Mind, and thence to Record. *Matter and Force* cover the Physical Sciences; *Life* the Biological, Ethnological and Medical Sciences, Economic Biology, and Domestic Arts; *Mind* Philosophy, Religion, and Social and Political Science; and *Record* Language and Literature, and History and its collaterals. In these, as in all other cases, the sum of the terms is equal to the class term of which they are parts. The order of either Bacon's scheme or Brown's may or may not be satisfactory. All we are concerned with here is that there is an order in each which enables the classifier to "cover the ground" of general knowledge comprehensively. In a similar way a *special classification* is an orderly development of one of these classes or a part of it.

27. The first things to notice in this work are the Terms. Terms, we repeat, are the names we give to classes, divisions, sub-divisions and sections; or, Terms are the names of any subjects that may be included in a classification. There is not much to learn about Terms, but the little is important. Terms must be the best for the purpose in hand; they must convey as completely as a word or phrase can the whole of the subject of which they are the name; they should be clearly and unmistakably definable. Classifiers in scientific subjects use, as they find convenient, either technical terms or popular ones for the same things. Probably technical terms are best, but that is a controversial point that may be left. Terms should be unequivocal; that is to say, should admit of one meaning and one only. If we use the word sharp

to make a group of sharp things we must be sure that it represents one attribute and not the variant attributes implied in so silly a classification of sharp things as razors, needles, street arabs, fox-terriers and sour vinegar: or of sweet things, to include chocolate creams, flowers, women and music. Cross-division, which means that things are placed in more than one class, results from the inconsistent use of terms. *Terms in a classification must be used consistently.*

28. Having now reached the knowledge that a classification *schedule* consists of a series of class names arranged in an order, we can go on to discuss how the schedule is made. The first of the logical rules, already given in paragraph 19, tells us that division proceeds from terms of great extension and small intension to terms of great intension and small extension. As the whole process of classification-making (and indeed much of the art of logic itself) depends upon an understanding of the terms *extension* and *intension*, a more careful account of them may be given. They may be regarded as two ways of looking at a term; in extension we regard it as a class name which "covers" a certain thing or a number of things, in "intension" we consider it from the point of view of its meaning. In other words, the extension of a term is all the things it covers; its intension is all the qualities of those things. The word Science in extension covers all the mathematical, physical and natural sciences; Science in intension means the study by observation and experiment of things in order to arrive at their properties and laws. Or again, the word Man means in extension all the individuals comprising the human race; in intension it means a mammal of upright gait possessed of reason. Terms of great extension have necessarily small intension; by which we mean that of such a term as the Universe we cannot express its meaning easily. Science, too, is a term of great extension, but its intension is small because it is so vast that it is almost indefinable as to meaning. Conversely, a term with great intension is one where full

and even unique definition is possible; it has much meaning and therefore small extension. We say, in logical language, that as the extension of a term increases its intension diminishes. It will be observed at once that the names of the main classes in a classification are necessarily terms of great extension; we have only to consider the range of things covered by each of Bacon's three main classes, or of the terms Philosophy, Religion, Sociology, and so on, which are those of Dewey main classes. We begin with terms such as these and proceed to terms of greater intension and smaller extension by gradual steps.

29. We do this by adding differences to the main class term to mark it off into divisions. If our class is Science we can add the difference, Mathematical, Physical, Astronomical, Geological and Biological to analyse and therefore divide it. Thus we get:

Science

Mathematics	= Science + the difference	Mathematical quality
Physics	= Science + „	Physical quality
Astronomy	= Science + „	Astronomical quality

and so on.

The word difference introduces us to the *Five Predicables*, a series of useful logical Terms which are the names of qualities which can be predicated of anything. They are *genus*, *species*, *difference*, *property* and *accident*. A term is a genus when it extends over more than one idea or thing; it can be divided. A class name is a genus, and it can be divided into species. The species, therefore, are its divisions, and the sum of the species is the genus. Thus, Science, a class name, is a genus, which can be divided into Mathematics, Physics, etc., in the manner shown on p. 25; but Physics can become in turn a genus in relation to its own parts or species, electricity, optics, light, heat, etc.; and Optics is a genus in relation to reflection, refraction, absorption, etc., and so long as any of these can be divided, in its turn it is a genus. The factor by which we divide genus into species is the difference, which is defined as some quality or attribute added to

the genus to mark a part of it. We saw on p. 25 how Mathematics is Science + the mathematic quality; and examples will occur immediately to any thoughtful student. Animals + the difference of the vertebral column = vertebrates + the quality of being viviparous and suckling of the young = mammal; mammal plus the difference of reason = man. It is clear that in a classification difference is the determining factor of division itself. Likeness makes the genus, i.e. draws all the species or all the things having it into one family; difference is the something added to these things which abstracts the species or members of the family. In outline, our classification of man shows that

<i>Genus</i>		<i>Difference</i>		<i>Species</i>
Zoology	+	sensibility	=	animal
animal	+	backbone	=	vertebrate animal
vertebrate	+	viviparous quality	=	mammal
mammal	+	reason	=	man

Every classification must proceed on some such lines as these. In an arrangement of purely literary subject, we have genus and difference making species, as

<i>Genus</i>		<i>Difference</i>		<i>Species</i>
Words	+	printing or writing	=	Literature
Literature	+	binding	=	Book
Book	+	a literary pattern	=	A book of verse
Verse	+	5 iambs to line	=	Iambic pentameter
Iambic pentameter				verse
verse	+	14 lines	=	Sonnet
Sonnet	+	octet and sextet form	=	Petrarchian sonnet

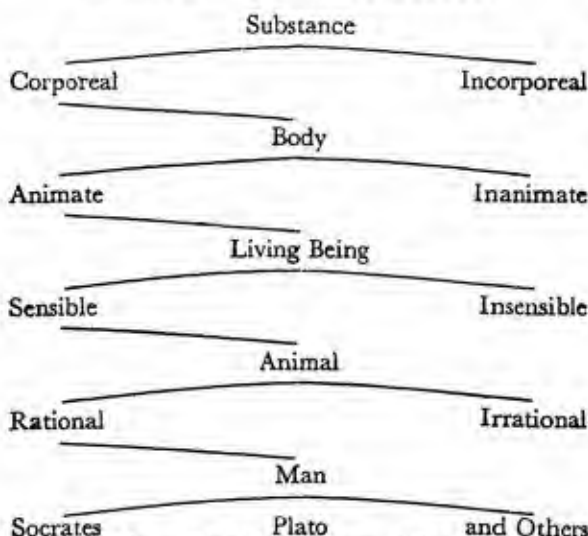
As a classification of a sonnet this is perhaps not ideal, but it illustrates the process, by which "sonnet" is the last link in a chain of which "words" is the first of six links each less extensive than the previous one. It could be demonstrated by dividing dogs by the difference of breed; tables by the difference of use; literature by language, and so on.

In summary, in making a schedule of classification we first divide our genus or all-comprehending class (Knowledge in a general classification) into its great species or main classes by the most significant differences we can find. Then each of these main classes in turn becomes our genus and is separated by significant differences into its species or divisions; and for each of these divisions the process is repeated and continued until we reach the subjects which are incapable of further division.

30. There are, however, two of the five predicables which we have not defined. *Property* is somewhat difficult to define, and important as it may be does not greatly affect practical classification-making. A property is a quality which every member of a class must possess but which is not confined to that class. Breathing is a property of animals, but is not confined to them; similarly the properties of memory, affection and anger belong to man but are also shared by other creatures. *Accident* is a quality which may or may not be possessed by the members of a class and does not affect its nature. The size of a man is an accident, so is his birthplace, or his name. In library classification, the size, shape, binding and weight of a book are accidents. They do not affect the books as a literary vehicle.

(In parenthesis, however, it may be well to say that *size* is important for space reasons in library arrangement as a little reflection will show. Octavos, quartos and folios on a subject are classified by the same notation symbol, but they have to be separated on the shelves in order to save the loss of vertical space which would occur if books 30 inches in height were made to stand beside books of 5 inches or less.)

31. The classical, and at present unpopular, Tree of Porphyry exhibits the working of the principle of extension and intension and the uses, at least in part, of the predicables. The diagram shows it to be merely a division stage by stage in pairs, positive and negative, of the great, almost indefinable, class Substance, in order to arrive at the most minute subject, relatively, Plato.



The name, Tree, for this diagram, is justified by the fact that it represents an inverted tree of being, growing along a biological stem as it were, and throwing off pairs of branches. If the diagram is reversed it represents a tree growing out of Substance.

Substance is a genus which cannot be considered to be a species of any higher or more extensive genus. It is a class of such enormous extension, it covers everything, that it has hardly any intension. We can only affirm that it is. But by the process of division employed we are able to abstract everything from it. To the genus Substance we add the difference, the possession of corporeality, and mark off the two species or divisions, the Corporeal and the Incorporeal, and so produced Body, and so on.

As a new difference is added to the stem a term of reduced extension and of increased intension is made; each positive term is at first a genus divided by the difference into two species, one of which in turn is regarded as a genus in relation to *its* species; the process being continued until individuals, who cannot logically be divided, and are

the *infima species* or most specific terms, are reached. If the process has been perfect, one characteristic of division has prevailed, it has been by gradual steps, the terms have excluded each other, and all the terms added together make substance. To show how the sum of the terms makes up the full definition of the term Substance, we may arrange these terms in mathematical manner.

Substance = Bodyless Things + Body.

Body = Substance + Corporeality.

Living Being = Substance + Corporeality + Life.

Animal = Substance + Corporeality + Life +
Sensation.

Man = Substance + Corporeality + Life + Sensation
+ Reason.

Plato = Substance + Corporeality + Life + Sensation
+ Reason + An individual named.

The abstraction of subjects for classification must move in such manner as shown in the Tree, yet, from the point of view of making a classification, it is inadequate, not only because it does not develop the negative subjects it includes, but because the stages are too great; the pairs of branches are too far apart. The second rule stated in paragraph 19 is that the process of division must be gradual, and the Tree does not show gradualness. There are many intermediate stages in a biological classification, between the sensible living being and the animal, between the animal and reason, for examples, as a brief reflection will convince us. The Tree merely represents an invaluable way of showing the process of division in broad outlines; and there is no better exercise than to take any subject of a general character and to divide it according to the principles of the Tree.

32. Modern classificationists naturally find the connexion of the Tree with library classification somewhat tenuous. It is retained here only to show the logical manner in which sub-division does proceed. That it does so is illustrated by the following chain made in

Porphyry-fashion to reach the place for a somewhat minute subject in Science as in the 15th edit on of the Decimal Classification.

0.0	Knowledge.
.5	Science.
.53	Physics.
.539	Molecular physics.
.539.7	Nuclear physics.
.539.77	Experimental.
.539.772	Ionization chambers.

If we add "not Science," "not Physics," and so on, at the appropriate steps the total result will be a scalar system, at each step of which we have isolated, and reduced the extension of a part of Knowledge and increased its definition or intension. But obviously a system which leaves aside everything not in the direct chain of Knowledge to Ionization Chambers and yet throws off step by step all the remainder of Knowledge is not a classification of Knowledge. Nor does Dewey or any other scheme do it. The chain however is correctly made and will fit into the classification we desire to make.

33. What exactly the library classificationist does may be shown by keeping before us the horizontal lines which indicate the stages in a family genealogical tree. The genealogy is usually aimed at showing the descent of a particular person. It first shows the primordial ancestor; then, in a horizontal line in order of birth, his sons and daughters, and follows this by indicating one person in the line, throws down a vertical line to direct us to the second horizontal line of *his* children in order of birth; and the process continues until the whole family tree is exhausted. This is the genealogy of one man who is the last link in a chain hanging, as it were link by link, from the primordial ancestor. The genealogy of the whole *family* would require the development side by side of as many series of chains as there were children of the ancestor; an enormous work. So in library or other general classification the object is to

trace the relationships of every subject, from the general to the special subject, by gradual steps of decreasing extension and increasing intension until the whole universe of thought and things is covered. A general scheme therefore is a great number of classificatory lines showing the right subordination and correct co-ordination of subjects, or classes, in each; and finally the right placing of each classification in the entire scheme.

33.1. Thus, in the Decimal Classification, Dewey began with the universe of Knowledge and made as his first line of Main Classes the familiar :

General Works, Philosophy, Religion, Social Sciences, Linguistics, Pure Science, Applied Science, Fine Arts, Literature, History.

This, to use Ranganathan's term, is the first array of the scheme. Each term in the array marks a great area of Knowledge but one of less extension and greater intension than Knowledge itself. Each excludes everything covered by the other terms; they are mutually exclusive. Together they make up the whole of Knowledge; they exhaust the universe—in outline of course. They are placed (collocated) in the order the classificationist thought most convenient for his users. Other classifications make the arrays of their schemes in what *they* deem the most convenient order as shown in paragraph 26. His first array, or outline, or main classes, being established, he proceeds to sub-divide each of them into its own first array. In Dewey, we get, therefore, ten such arrays, of which Pure Science is a convenient example :

Divisions of Pure Science :

General Mathematics, Astronomy, Physics, Chemistry,
Geology, Palæontology, Biology, Botany and Zoology

which, again, are mutually exclusive classes which in sum are the whole of Pure Science. They are collocated so that they exhibit the progression of the sciences from the

physically lifeless to the living; that is to say, the things that are most like or most nearly related come together according to the degrees of their relationship. The process continues; each of the sciences being sub-divided into its own first array; this in turn into its own; and this again, until the whole of the possibilities of sub-division are exhausted and the enumeration of the parts of the class are completed when the smallest possible specific term is reached. It may be repeated that at every stage a consistent characteristic or principle of division is observed until the stage is completed. After that a second characteristic may be employed, which in turn must be consistently employed until this stage is completed; and so on.

If this has become clear, a general scheme of classification is seen to be a number of series, in Dewey ten, each subdivided systematically from beginning to end. The terms cannot be set out at each stage horizontally as common sense would seem to suggest; reasons of space make that impossible. They must be set out in columnar form and the result are the vertical series that we get in a normal printed library classification, but the horizontal relations of classes (their array) can readily be inferred as well as can the vertical (or chain) relations.

34. READINGS.

JEVONS. *Elementary Lessons in Logic*. Lessons III-V, XII.

As the first three chapters of this *Introduction* deal mainly with logical subjects, the student may do well to apply much of his attention to the various descriptions of terms and of the classifying process in good modern text-books of logic. While Jevons is not exactly modern, and some of his views are discounted by modern logicians—it is fair to say that—so far as such principles as enter into the making of library classification are concerned, he is sound and is certainly the simplest of writers on the subject. When this book has been mastered, the student is advised to read the same subjects in the admirable expansion which he gave to them in his *Principles of Science*. Failing these, or in addition to them, the accounts

of terms and of classification given in the text-books of Mill, Carveth Read, Welldon, Wollf, or any other good writer, will be of service.

SAYERS. *Manual of Classification*. Chapter II.

35. QUESTIONS.

Work exercises III-IV of Chapter XX.

- ✓(1) What is a schedule of classification?
- ✓(2) Name a "General" classification scheme known to you. How does it differ from a "Special" classification?
- (3) Describe as fully as you can the meaning in extension of the term "man" and also its meaning in intension.
- (4) Outline briefly the meaning of the Five Predicables.
- (5) How does "difference" govern division in classification?
- (6) How does the Tree of Porphyry illustrate the extension and intension of terms?
- (7) Construct a scheme on the model of the Tree of Porphyry beginning with the World and ending with Oxford Circus in London.
- (8) Show from Dewey, or any other classification, the "collocation of classes."

CHAPTER III

THE MAKING OF THE SCHEDULE

II. ARTIFICIAL AND NATURAL CLASSIFICATION

36. We have now sufficiently defined a characteristic of classification as the principle upon which division is made. Characteristics may be artificial or natural. *A natural classification is one that exhibits the inherent properties of the things classified: an artificial classification depends upon some arbitrarily chosen characteristic or accident of the things classified and has no direct relation to their inherent properties.*

The example given by Mr. L. Stanley Jast deserves to be remembered.¹ He points out that the consonants of the alphabet may be arranged artificially by the position the letters occupy in space, and we get some such results as this:

* ¹ In some lectures at the London School of Economics, 1905.

1. Letters resting on the line, w, x, r, c, m, n, etc.
2. Letters resting on and rising above the line, d, b, l, t, etc.
3. Letters passing through the line p, q, g, etc.
4. Letters passing through and rising above the line; f is the only example.

But this arrangement conveys nothing about the letters except the accident of their shape. If, on the other hand, we arrange letters by the parts of the mouth, throat, etc., brought into use in their pronunciation, as shown in the arrangement of consonants in Morris's *Primer of English Grammar*, Chapter II, or any other good grammar, we get a natural classification into:

Gutturals.
Palatals.
Dentals.
Labials.

which tells us of their method of pronunciation and enables us to gather how they will combine with vowels and with one another.

37. Practically the whole history of the classification of knowledge is a gradual working forward from artificial schemes of arrangement to more and more natural ones. In describing the difference between natural and artificial classification, the scientist tells us that artificial classification is classification by *analogy*, that is to say, things are classified by their external likeness and apparent purpose; while natural classification depends upon *homology*, the likeness that resides in the structure and function of the things classified. In the development of Botanical classification, for example: Caesalpinus, one of the earliest classifiers, in 1583, divided plants obviously by analogy into the very artificial divisions, Trees and Herbs, and then arranged the plants in each by the situation of the seed-vessels; Morrison, who followed, founded the system, afterwards developed by Ray in a more natural manner, of Flowering and Flowerless Plants, and divided the former into Monocotyledons and Dicotyledons; and Tournefort divided by the presence and form or absence of

the Corolla. Linnaeus, however, although aiming at a natural system, produced a more artificial system—in fact, the standard example of such a system—which proved a setback to the more natural scheme of Ray. In this the main basis of classification is the number of stamens and pistils which are found in the flowers. There are two main classes, A Flowers present and B Flowers absent; and of Class A there are three divisions:

A I Stamens and pistil in every flower.

A II Stamens and pistil in different flowers.

A III Stamens and pistil in the same or different flowers.

A I is sub-divided into

A I₁ Stamens free.

A I₂ Stamens united.

and A I₁ into

A I_{1a} Stamens of equal length.

A I_{1b} Stamens of different length.

and A A_{1a} Stamens of equal length

in number I Monandria

„ „ II Diandria

„ „ III Triandria

and so on. It will be seen that the number of the floral organs was the main characteristic, although a fuller study would show that the length of stamens and shape of fruit, etc., also modified the arrangement. The difficulties of a form of classification which takes so artificial a characteristic as number are well illustrated here. Unless the plant is in flower with all stamens and styles perfect we cannot classify it. We know, too, that different flowers on one plant may vary in the number of stamens, and so cross-division is certain. Hence the characteristic fails to reveal the full *nature* of the things classified. The importance of these distinctions for the classifier of the sciences is obvious, since only that arrangement which most fully

describes the things classified can ultimately be satisfactory; there the purpose is to reveal the relationships in things. In like manner, it may be said that one requirement of a library classification is to reveal the relations of books. The only *natural* relation between books appears to be their subject matter, and it might be inferred that all books must therefore be arranged in exactly the same order that the subjects they contain must follow. While this is largely true, it is so only in part, and hence the rule that the characteristic chosen must be, *not necessarily natural or artificial, but that which is most convenient*; and what is convenient for one library purpose may not be so for another. Closely bound up with this subject is the question of order, to which reference has been made several times. Nearly every classifier of modern times, when he had a theoretic outline for his scheme, has followed in some sort of way what he assumed to be "the order of nature" in arranging his hierarchy. J. D. Brown, as we saw, contrived to represent his idea of a developmental, and, as I think, roughly evolutionary, order even in his outline, and nearly all library classification-constructors have adopted evolutionary order, at least in their divisions of the biological sciences; indeed of all of what are known as the classificatory sciences; or, they have used an inverted evolutionary order. Such classifiers as Cutter claim it throughout (see Section 100, below). Evolutionary order must rest upon natural characteristics. The reasons in support of this classification theory have already been stated in paragraph 20, but the student is warned that *a general book classification need not be evolutionary at all*. Further, such a classification, pursued from the all-containing class Knowledge to its most minute details in evolutionary order, is probably an impossibility. Few observe evolutionary order even in their main classes; those who see it in the order of the main classes of Dewey—Philosophy, Religion, Society, Language, Science, Useful Arts, Fine Arts, Literature and History—are merely creating an imaginary order to fit the occasion, as also

Gustav Mouravit endeavoured to do for the Brunet system.¹ When we say, therefore, as we do in rule 2 in paragraph 19, that each term of a classification must modulate into the term following it, we are only expressing the way in which each *subject* must be divided. The total field of knowledge cannot be arranged comprehensively and exhaustively by a continuous modulation of steps in any schedule in which the terms must be written vertically. For example, if in Dewey we could argue that Philosophy led to Religion which was derived from it, the minute last sub-division of Philosophy, which is 199, Other Modern Philosophers, certainly does not modulate into Religion; nor does the last sub-division of Sociology, 399, Customs of War, modulate into Language. The point is that evolutionary order insists that classes develop one from another, but we know that many are parallels (are collocative) and therefore such a method in a general classification is not to be expected. But these difficulties being granted, when the field of things has been divided into great convenient, self-exclusive tracts of knowledge which we call main classes, within those classes, as far as possible, it is usual to adhere to the order preferred by those whose business it is to determine it, the philosophers and the scientists.

38. By way of summary the definition propounded by John Stuart Mill and altered by others, may be repeated and considered. It is merely an expansion of the themes in our shorter definition in paragraph 9:

Classification is the actual or ideal arrangement together of those which are like, and the separation of those which are unlike; the purpose of this arrangement being primarily

- (a) *to facilitate the operations of the mind in clearly conceiving and retaining in the memory the characters of the objects in question.*

secondarily

- (b) *to disclose the correlations or laws of union of properties and circumstances*

and also

- (c) *to enable the recording of them that they may be referred to conveniently and quickly.*

We have set out the definition in order to distinguish its parts. The first sentence presents no difficulty except possibly in the word "ideal," which the reader will no doubt see to mean something different from the actual; and it can be explained, as has already been done, by considering the arrangement of a set of flint implements. If we lay the flints themselves out in trays we are making an *actual arrangement*, but at the back of that lies the *ideal arrangement* in our minds to which we are making our actual objects conform. In short, classification is the mental arrangement of concepts or ideas of things which can become the arrangement of the things themselves.

We assemble things into classes by some likeness in them, and then separate the members within our classes by differences. Or, to put it another way, we arrange the members of a class so that those most alike come together (are collocated), and as this likeness decreases, so do we separate (subordinate) the other members. If we could follow every subject through from main class to most minute topic we could get a perfect *hierarchy*, and this is done in some subjects in Zoology, but what we generally have to do in library classification is to divide each main class by definite characteristics into its main divisions, and then to arrange these according to the degree of likeness they have to one another. The process of arranging by degrees of likeness, and separating by degrees of unlikeness is continued under every division, and then under every sub-division, section and sub-section, until division is no longer possible. The whole is written down as an exhaustive and detailed schedule of the class.

The statement of the purpose of classification made in the sections of the definition *a*, *b*, *c*, shows both *how* things come together, and the *results* of their assembly. If we sort things in accordance with a plan, it is because we have reached some notion of their characters, and the arrangement we make must give clearer conceptions of the things and help us to remember their distinctive qualities; which naturally leads on to *b*, since the purpose of all arrangement is to find the properties which are common to things, their likeness. "The union of properties and circumstances" is another way of saying this. In short, by observation and experiment, our minds become aware of the likeness in things; we sort or classify these things, according to likenesses, and so are able to infer that there is a law of likeness.

Finally, in *c*, we have a definition of the application of classification to practical purposes. If the classification is written down in schedule, and if we apply to each term in it a number or symbol, the places of terms become constant in the schedule, and the order can be applied by anyone to whom it is serviceable. Thus, the workers in any science, using a common schedule of classification, work at like groups of things arranged in like order, and standard means of reference are used. The library classifier interprets all this as meaning that a classification must be written or printed in accessible form and be equipped with a working notation and an alphabetical index to the terms in the schedule.

39. READINGS.

SAYERS *Manual of Classification*. Chapters II-IV.

JEVONS. *Elementary Lessons in Logic*.

[Lesson XXXII.]

Principles of Science.

[Chapter XXX.]

FOWLER. *Inductive Logic*.

[Chapter II—an excellent account of natural and artificial classification.]

40. QUESTIONS.

Work exercises V-VI of Chapter XX.

- ✓(1) What are, (a) artificial and (b) natural classification?
- (2) Describe the advantages, if any, of the natural system of Botany over the Linnæan.
- (3) Make an artificial arrangement of books on history and explain its deficiencies as a practical classification.
- (4) How may an *essential* characteristic in library classification be either natural or artificial?
- ✓(5) What is evolutionary order? Does any library classification employ it?
- (6) What is the difference between "actual" and "ideal" arrangement?
- ✓(7) In what manner does the dividing method used by the library classificationist conform to and differ from that exhibited in the Tree of Porphyry?
- ✓(8) What must be added to a knowledge scheme to make it work as a library scheme?

CHAPTER IV

THE MAKING OF THE SCHEDULE

III. THE PARTS OF A BOOK CLASSIFICATION

41. *In order to make a classification scheme a practical instrument for the arranging of books the nature of books themselves must be considered.* We have now a background to our study which enables us to focus our attention upon library classification; by which we mean both shelf and catalogue classification. If the book is regarded as a statement of some part of knowledge, then all books taken together must be a statement of all knowledge; although, as books have not been written on many subjects, and no subject has ever been exhausted, it is necessarily an incomplete statement. It therefore would seem to follow that the order in which we arrange knowledge is the reasonable way in which to arrange the units of its statement—books. Classifiers, as we have several times indicated, differ, and always will, as to what is the best order

of knowledge. Such a problem may never have a solution; but *an* order is preferred by most classifiers, and the order in which men expect to find books together is usually urged. There is no such order valid for all subjects and at all times. All that we can do is to take the order of the scientists and philosophers of our own day and to fit our books into it. That order will change if the major sciences change their subjects or develop in any radical sense, but we are not concerned in a practical way with that, because so long as the scheme we use has common sense arrangement and is flexible it will serve even though change does occur. In short, a book-classification is not a current statement of the classification of pure knowledge; it is an adaptation of as perfect a statement of knowledge as the classification-maker can find *when* he makes his classification, and it is preserved in use by its additional apparatus in the shape of notation, index and other auxiliaries.

42. This, therefore, is the meaning of the phrase: "*a classification of books is a classification of knowledge with adjustments conditioned by the physical form of books.*" Any ordinary knowledge scheme, from Bacon's to Karl Pearson's, if it is really general and comprehensive, and is furnished with the following adjustments:

1. Generalia class.
2. Form classes and divisions.
3. A Notation.
4. An Index.

can be used to arrange books broadly with some degree of success, because the very fact that it is comprehensive enables it to provide somewhere for all knowledge. At the risk of being wearisome we repeat that this is not meant to convey that such a classification is desirable at this day, because it is now clear that, whatever may be their derivation, library schemes are specially constructed for library purposes. All the four adjustments given above

are necessary because the book is a complex affair: we have mentioned as an example a book on geology. Geology itself is a clearly-definable, separate subject in a knowledge classification; but a book on geology may be a history, a periodical, a dictionary, or take any other view-point or literary shape, and physically it may be a pamphlet, or be in folio or any other size. We have therefore to provide means of discriminating these in the most useful manner.

43. Leaving notation for separate consideration, we can consider the other three adjustments. A *generalia class* (called in most classifications General Works) is one in which are placed books too general in subject to go into any single subject without strain. The class is inevitable because there are books which deal with several subjects. The standard generalia book is an encyclopædia of which the *Encyclopædia Britannica* is the familiar example. It deals with all the subjects in classification, and it must be obvious that if we arrange it under science or literature we have buried it so far as its other subjects are concerned. Another example is a newspaper: any issue of *The Times* deals with philosophy, religion, law, literature, in short the whole range of human thought and deed; and periodicals like *The Nineteenth Century* are of a similar universal scope. The generalia class also may include subjects that are said to be essential to or are "pervasive" of other subjects. Thus bibliography and library economy are included by Dewey on the ground that they affect all books. Brown in his Subject Classification carries the principle much further, and includes in his Generalia such subjects as Education, Logic, Mathematics, Geometry, the Graphic and Plastic Arts and General Science. He grounds this upon the statement that the class includes "most of the rules, methods and factors which are of general application, and which qualify or pervade every branch of science, industry or human study. They are universal and pervasive, and cannot logically be assigned to any other single main class as peculiar or germane to

it." Brown's words are an admirable statement of what a generalia class should be but its application to the Graphic and Plastic Arts, to take one instance only, is a controversial matter which we may avoid here. Generalia is sometimes labelled Miscellany or Miscellaneous works.

44. As already defined, a *form class* is one in which books are arranged by the form or literary pattern in which they are written. To some extent, of course, a Generalia class is a form class, as encyclopædias, dictionaries and periodicals have a recognizable literary form; but their generality is their main characteristic and by that are they allocated to their main class. The form class proper is the *Belles Lettres* class, or as it is called in Dewey, Literature, or, in older classifications, Polite Letters. This, again, is clearly something added to a classification in which the characteristic of arrangement is the subject of the book, since in strict classing Dante's *Inferno* is a picture of mediæval catholicism, Tennyson's *Becket* is history, and Scott's *Quentin Durward* an imaginative account of France in the reign of Louis XI; but, useful in some ways as such an arrangement is, it is less useful and open to far more objections than an arrangement of these works according to their respective forms of poem, drama and novel. The pattern then is the characteristic by which books in the form classes are assembled, and that pattern is usually quite recognizable. The main points about these classes are their arrangements within the class. Dewey arranges literature, first, into the language in which the book is written, dividing however American literature from English under a separate heading, and conversely, arranging Belgian French Literature with French; second, into the forms poetry, drama, fiction, essays, oratory, etc.; and, third, into chronological order. A sample is as follows:

8 Literature
82 English

→ works assembled by *pattern* and
→ divided by *language*, which is

- 821 Poetry → re-divided by *form*, and then
 821.3 Elizabethan → by *chronology*, which is
 821.32 Sir Philip Sidney → sub-divided by *chronology*.

In other classifications variations of this order are used. In the Brown Subject Classification this form class consists of five plain *form* sequences of Fiction, Poetry, Drama, Essays and Miscellaneous, under each of which are arranged works on the theory and practice of the form followed by an alphabetical arrangement of the individual novelists, or poets, or dramatists, irrespective of language. Thus the poetical works of Tasso, Bayard Taylor, Tennyson, Theognis, Thiard and Tibullus run one after another in a straight alphabetical order, and in like manner are arranged the novelists, dramatists and essayists. In the Library of Congress Classification, language is the first sub-arrangement of Literature; then it is sub-divided *a.* by the history of literature as a whole, and then *b.* individual authors in prose and verse are arranged in periods. This is the most elaborate and in some ways the most satisfactory of the classifications of literature.

45. In our example of a book on geology it was seen that it might treat the subject from several aspects or in several forms. Certain of these methods of treatment are common to every subject, and a series of *form divisions* to individualize them has been attached to most library classifications. The usual forms in which some books on every subject may fall are:

- (1) treatises or compends or outlines of a subject.
- (2) dictionaries of it.
- (3) periodicals on it.
- (4) societies and their transactions dealing with it.
- (5) essays on it.
- (6) collections or anthologies of it.

All these have an *outer* form which can readily be detected. Other forms that can be predicated of some books on every subject are:

1. Theory or philosophy of the subject.
2. Education in or method of teaching the subject.
3. History of the subject.

These are *inner* forms or modes of approach. These can be, and have been, extended considerably. Some systems, for example, include bibliography, biography, etc., and in the thirteenth (1933) edition of Dewey we have in Table 2 an elaborate extension of form headings *which may be used as qualifying or discriminating any subject heading*. Since they can be applied to any subject these numbers are called familiarly *common sub-divisions*, and by that name will be referred to hereafter. It is usual to give to each of these common sub-divisions a number which can be added to any class number to show the form required, and thus in Dewey we have these common sub-divisional numbers 1—9 (usually written 01—09), and in Cutter we have also 1—9; thus:

Dewey Decimal Classification.

Common Sub-divisions.

- 01 Theory.
- 02 Compends, Outlines.
- 03 Dictionaries.
- 04 Essays.
- 05 Periodicals.
- 06 Societies.
- 07 Education and Study.
- 08 Collections.
- 09 History and General Local Treatment.

Expansive Classification.

Common Sub-divisions.

- 1 Theory.
- 2 Bibliography.
- 3 Biography.
- 4 History.
- 5 Dictionaries.
- 6 Year books, Directories.
- 7 Periodicals.
- 8 Societies.
- 9 Collections.

Thus in Dewey, Science is 500, and the theory of Science is 501; and other examples are easily seen

- 510 is mathematics.
- 510·9 is history of mathematics.
- 511 is arithmetic.
- 511·09 is history of arithmetic.
- 511·4 is fractions.
- 511·409 is history of fractions.

and any subject number may be thus divided. It is to

be noted that the 0, which means "a change in the form of classification," is essential, otherwise the number 9 would be a *subject* and not a form division; i.e. 511.9 is Arithmetical problems and tables.

In the Cutter common sub-divisions the numbers, which are not decimal but employ the point merely as a separating device, have an invariable meaning and may also be applied universally. Thus:

X	is Language.
X.2	Bibliography of language.
XDC	Names.
XDC.5	Dictionaries of names.

and so on.

The Library of Congress has similar sub-divisions but uses them with slight variations in *each class*, and they are not reduced to a common table as are those of the two earlier schemes.

46. The Brown Subject scheme differs from all others in the extent and character of its common sub-divisions. The principle that sub-divisions which apply consistently shall be in one common table is followed as in these, but in addition the further principle is adopted that: *sub-divisions which apply to more than one subject should be in a common table*. That is to say, whenever more than one term can be sub-divided in a similar way, the sub-divisions should have the same number and need not be printed under each of the containing terms. Brown collects these sub-divisions in what he calls Categorical Tables, consisting of 979 numbers. These tables, as we have said, include the orthodox common sub-divisions (i.e. .1 Bibliography, .2 Encyclopædias, .3 Text-books, .4 Popular non-scientific text-books, .5 Philosophy, .6 Societies, .7 Periodicals, .8 Collections, .10 History), but go on to include such subjects (to make a selection) as:

.11 Ancient History.	.194 Travelling.
.12 Christian era.	.195 Post Office.
.14 Modern history.	.212 Piracy.
.18 Military history.	.213 Sailors.

·19	Naval history.	·214	Navy.
·20	Battles.	·239	Heat.
·23	Calendars.	·240	Combustion.
·27	Bulls.	·243	Smoke.
·28	Coronations.	·248	Steam.
·174	Harbours.	·267	Songs.
·175	Docks.	·270	Oratorios.
·193	Communication.	·273	Astronomy, etc.

Most of these, although in theory they can be applied anywhere, are merely transferred subject divisions. They are applied after a point, which as in the Cutter scheme is merely a separating device; thus:

B800 Naval Science.

B800·10 History of naval science.

but clearly to add to the class number given such numbers as:

B800·27 Naval Science—bulls.

B800·240 Naval Science—combustion.

would be absurd. The categorical tables are an integral part of the methods of schedule-making followed by Brown which are explained later.

47. Apart from Generalia and Form classes, the treatment of such subjects as Language and History assumes a certain "form" rather than subject character. Language divides into linguistic groups and then by a constant set of what in effect are form sub-divisions, and the result, although the most convenient, is artificial. History as a subject should be distinguished by the student from the history of a place or a people. The real meaning of history may be the treatment of things serially or an attitude of mind towards them; and is best illustrated in such books as Harrison's *The Meaning of History*, Lambert's *The Nature of History*, and Taylor's *History as a Science*, in all of which history is the *subject*. On the other hand, in Macaulay's *History of England*, the subject is the country treated historically. We have, therefore, in most schemes tables of places to which we prefix numbers meaning

geography, history, or any other subject; thus in Dewey:

42	England.
942	History of England.
914.2	Description or Geography of England.
581.942	Flora of England.
607.42	Schools of technology in England.
610.942	History of medicine in England.

and similarly the 42 can be added to many subjects to indicate England. This *place table* (or series of *geographical* sub-divisions) is a purely library classification device and further distinguishes it from a knowledge scheme.

48. In Bliss's classification, which has an alphabetic notation, the common sub-divisions are a carefully planned part of the scheme, although the compiler prefers to call them, as indicating their extra applications, "recurrent and ancillary divisions," and substitutes the term "systematic schedules" for the usual "auxiliary tables." He writes, "the *schedules* of a system of classification should be economised and their use facilitated by applicable tables for recurrent specifications of subjects, 'formal,' methodic, historical, geographical, or national linguistic artistic, etc." The numbers which in these tables are generally or commonly applicable or recur throughout the classes, sections, and sub-sections, he calls *constant mnemonics* and those which are occasionally grouped he calls *variable mnemonics*. For *constant* use he has provided nine tables (schedules), the first of those being much the same in operation as the Dewey common sub-divisions; they are numerical, as:

- 1 Reference books.
- 2 Bibliography.
- 3 History.
- 4 Biography.
- 5 Documents.
- 6 Periodicals.
- 7 Miscellaneous.
- 8 Study of and books about the Subject.
- 9 Antiquated or Superseded books and materials.

and these numbers are given over eighty possible meanings. For geographical divisions a single-letter lower-case alphabetic notation is used:

- a America.
- b United States.
- n Eastern Europe.
- r China, etc.

which may be expanded thus.

- a America.
- aa North America.
- ab British America.

and so on. There are tables for reading room collections, bibliography, collections, periodicals, miscellanea, and historical and antiquated books. These are an important part of the new system.

49. A valuable feature of a bibliographical classification scheme is the *Index*, or alphabetical list of all the terms appearing in its schedules. The index should include, besides all the terms mentioned in the schedules, all the synonyms of these terms. It should show all the minute parts of a subject, so far as practicable, and parts which are included in the terms of the schedules but are too minute to be set out under them. The principal value of the index is to ensure that a subject always has a constant place in the scheme. For example, when Radium was discovered the treatises expounding it demanded a *decision* in classification. Some libraries placed them under electricity (Dewey 537), while others placed them under the Metals in Chemistry (Dewey 543). The latter head is, of course, correct as it brings Radium beside Uranium and its other cognates; but if the classifier chose electricity, and indexed his choice, he could use his index as a check on future placings, and so avoid the confusion of cross-classification which would arise if he placed later books under chemistry, having forgotten his first choice. Hence when a decision is made, it is important that the classifier shall enter it in the index of his

scheme as a check on the future placing of books on the subject.

50. Indexes are of two kinds, *specific* and *relative*.¹ The specific index shows only one place for each subject, and the index to the Subject scheme is of this variety. It does not show the relations of subjects. A relative index, on the other hand, shows all the relations of subjects or, at least, as many of them as the classification-maker has shown in his schedules. For example, in the Subject scheme the topic Sugar receives references I885, which deals with it as an industrial product, and E348, which deals with the sugar-cane as a member of the botanical group. The index ignores the use of sugar in confectionery, and in fact any other aspect of it. The reference is really one reference to Sugar I885. This is called *special*, or *specific* indexing. On the other hand, the Decimal scheme shows the following under the heading:

Sugar, adulterations	614.311
cane, agriculture	633
Manufacture	664.1
organic chemistry	547.3
refinery	664.1
refining, air pollution	614.734
vegetable drugs	615.352

Here we are shown all the aspects of Sugar that appear anywhere in the tables. Now, there must be places in the Subject scheme for all these correlatives, but they are not shown in the index, and they will possibly be looked for in the *Categorical Tables*. The Decimal therefore has a relative, the Subject a specific index. The student should note carefully that an Index is an aid to, not a means of, classification. Books should always be placed by study of the main schedules, with a distinct understanding of the heading under which they are placed. Placing by the index would lead to all kinds of ridiculous anomalies.

¹ Specific was a name of my own choice for the type of index entry which indicated one specific place. It is not a good term as it can be used also of entries in a relative index, each of which specifies; but it is now fairly generally understood, I think.

50.1. Libraries often keep their own indexes, to contain only the subjects on which they have books and to include the choices amongst the possible alternative headings which they themselves make. See paragraphs 176 and 187.

51. READINGS.

SAYERS. *Manual of Classification*.

[Chapters V and VIII.]

RICHARDSON. *Classification*.

[Lecture II.]

BROWN. *Library Classification*.

[Pages 59-61.]

SUPPLEMENTARY ADVANCED READINGS.

BLISS. *System of Classification*. Intro., Section VII.

— "Form in Classification," in *The Librarian*, vol. xxvi, pp. 128-30, 1937.

51a. QUESTIONS.

Work exercises VII-VIII of Chapter XX.

(1) "A bibliographical classification is conditioned by the physical form of books." Explain.

(2) Knowledge often changes the classifications of the philosophers, but a library classification may remain constant in its essentials and yet permit of the insertion of new knowledge. What does this mean?

(3) What is a Generalia class? Name six works that can be included in the class as defined by Dewey and Cutter.

(4) Comment on the Generalia class in Brown's Subject classification.

(5) Explain in what way the periodical *Nature* is special in relation to the whole of knowledge, but general in relation to science.

(6) What is the essential characteristic of a form class?

(7) What is the purpose of common sub-divisions?

(8) What is the difference between a Relative and a Specific Index?

CHAPTER V

NOTATION

52. To give fixity and practicality to a classification it must have a series of symbols which can be used in place of its terms; in other words a notation. It is something added to a classification and is important, since without it a classification cannot be kept in order and cannot be applied, but it is only something added; a good notation cannot make a bad classification good, but a bad notation may destroy a large part of the usefulness of a good one. This last fact has been the reason why some librarians have apparently chosen their classifications only by their notations, which is to show no clear understanding of what a classification is intended to do. Allowing all this, notation deserves careful study.

53. In definition a notation is a series of symbols, or shorthand signs—perhaps “short signs” would be more accurate—for the terms in the classification. Such a notation must be composed of characters which can be easily understood, are brief, are expansive and adjustable, and which in their arrangement show the arrangement of the classification. The commonest daily example of a notation is the registration mark on a motor car which represents in a combination symbol of letters and figures a particular locality, a person and car; it is not merely a running number. Similarly a chemical notation may represent in a group of letters and figures all the elements in a compound. A library classification notation may and does represent in one *class-mark*, the class, division, subdivision and section to any extent, to which a subject-term belongs; it is a symbol made logically.

54. It should be recognized that while notation is a quite secondary part of classification, it is *essential to its application*. This being so, the classification-maker is forced to compress his classes into such a number of groups as

can be marked by a *convenient notation*. Clearly knowledge does not fall into 10 groups, as in Dewey, as a natural event, nor does it fall into 26, as in Cutter, or, indeed, into any other arbitrary number. There is, in this way, a sense in which the number of main classes is governed by the notation, for, as the example in paragraph 101, below, shows, the main classes of one classification may, by the exigencies of the notation, be the divisions of another.

The purposes of notation are many, but the most important are:

(1) To give to a schedule of classification a symbol for each of its terms which shall be constant, so that whenever a term is to be represented it shall be marked by one class-mark only.

(2) The class-mark thus fixes the place of the term in the hierarchy of the schedule, and when an alphabetical index is made of the schedule (for example, the index to the Decimal Classification) the number attached to the index entry forms a rapid means of reference to the place of the subject in the classified order.

(3) To be a short sign to be written on the backs of books and in other parts of them (for example, on the backs of title pages), as well as in catalogue entries, shelf registers and on charging cards; so that the books on a subject are held together by their subject number on the shelves, and that number may be seen and found easily from the alphabetical index, the catalogue and other entries.

(4) To show the sequence and subordination of subjects. A successful notation is one whereby at a glance the *order* of the scheme can be seen, and from an individual number the importance of its subject in relation to its main class can be inferred.

(5) To achieve the qualifying of subjects by the combination of symbols: (a) to show related subjects, (b) to analyse books of several subjects, (c) to record aspects such as forms, place and language (that is to say, cross-references, common sub-divisions, and language, geographical, historical and alphabetical sub-divisions).

(6) To make practical the insertion of new subjects, or further sub-divisions of older ones, at any part of the schedule without any dislocating of its order (this is its expansibility, flexibility or adjustability).

(7) To serve, with the addition of some mark, such as an author- and work-mark, as a number for charging books in lending libraries. Some librarians issue books by class-marks and this has certain conveniences.

All of these purposes are more or less essential to library economy and will be achieved in proportion to the excellence or otherwise of the notation.

55. The qualities of a practical notation have already been said to be simplicity, brevity and flexibility, and these must be considered further. *Simplicity* depends upon the *kind* of symbol employed. A notation is said to be *pure* when it consists of one kind of symbol, and *mixed* when of more than one kind. Examples of pure notation are found in the exclusive use of figures in Dewey and of letters in Cutter. A rule formerly urged was that a notation should be pure, but this has proved to be too great a limitation. Richardson says that his ideal notation is one "using mixed symbols, but with a predominately decimal base," although by this I think he means "using a predominantly alphabetic base with decimal divisions," as he goes on to say that "every practical system sooner or later does make use of both letters and figures." Bliss goes so far as to state as a principle that "the base should provide for at least twenty main classes," and also indicates his preference for an alphabetic base from which O, Z, "and S, if the letter is likely to be confused with the figure 5,"¹ are omitted. The base of the notation are the symbols used to mark the main divisions, as 0, 1, 2, 3, 4, etc., in Dewey; A, B, C, etc., in Cutter and in Brown; or AA, AB, AC, etc., in the Library of Congress. A predominately decimal base is only possible in decimal systems. In practice most classifications have an

¹ *Organization of Knowledge in Libraries*, p. 71 (VII & XI).

alphabetical base and use decimal division of it to a greater or less extent. Whether the decimal base of the Dewey classification is to be preferred is a question on which opinions may differ. A definite test of simplicity is the ease with which the order of the scheme, i.e., the relation of a specific number to its containing division and class heading, is conveyed. This main requisite, simplicity, would seem to confine notation signs almost entirely to letters and figures. A classic example of symbols which are not simple is found in the notation of the scheme by Lloyd P. Smith (1882) which is marked first by Roman capital letters, divided by lower case letters, sub-divided by arabic numbers and further divided by arbitrary signs: thus we get:

A o	Ecclesiastical history.
o1	Oriental churches.
o2	Latin churches.
o2 +	Jansenists.
o2 Δ	Gallican church.
o2 □	Spain.
o2 IV	Roman Catholic Church in the United States and Canada.

The difficulty of remembering, writing or pronouncing such symbols is obvious.

A brief notation is an economy from every point of view, is easily taken in by the eye, and can appear legibly on records and is readily understood and remembered. The length of the notation in a properly constructed scheme depends upon the number of main classes, because every number is an expansion of its base symbol. This may perhaps be illustrated by considering the classing by Dewey of a book entitled *The Air Manual of the British Empire*, which is a book on the design, construction, and flying performance of aircraft. Aeronautics is a sub-division of Engineering which is a division of Useful Arts and the full class-mark is reached by this chain:

600	Useful Arts.
620	Engineering.

629	Other branches of Engineering.
629.1	Automotive industries.
629.13	Aeronautics.
629.1309	Local treatment [divided like 940-999].
629.13094	Aeronautics in Europe.
629.130942	Aeronautics in England.

It is because aeronautics is a fractional *part* of Engineering, which is a part of Useful Arts, that we need no less than four expansions of the number 6 (i.e. 2-9-1-3) before we reach the subject. Had Engineering been a main class with its own symbol, we should have saved one figure, but if Aeronautics itself had been a main class we should have saved four figures. It is not to be assumed that this is desirable, but it illustrates the principle. An even more pronounced case can be illustrated by the application of a notation to the Baconian scheme (paragraph 129) which has only three main classes, and therefore, by rigid rule, could have only three base symbols, which might be A, B, C; and our book on Aeronautics (a section of Mechanic Philosophy) would get some such mark as this:

A	History.
B	Poesy.
C	Philosophy.
CA	Divine.
CB	Natural.
CBA	Speculative.
CBB	Operative.
CBBA	Mechanic.

and then we have reached only the mechanic arts of which engineering is a sub-division. The notation would be very lengthy. Classification-makers therefore break up the field into as many main classes as they can merely to obtain a longer (vertical) base. Thus while Dewey has only 10 classes, Cutter, Brown and the Library of Congress can make use of 26. By the addition of a single extra symbol, Cutter gets $26 \times 26 = 676$ places, while Dewey gets $10 + 10 = 100$ places only. It follows, in summary, that the longer the base of the notation—that is to say,

the larger the number of initial symbols employed—the shorter will be the notation of the scheme.

56. From what has been demonstrated it can be seen that a class-mark does show the subordination or sequence of subjects since the first symbol indicates the main class, the second the division, the third the sub-division, and so on.

57. The hospitality of a notation is its *essential* feature for without it a scheme is soon exhausted. The collegiate press-marking system, described in paragraph 86, would be impracticable in a growing library, because it numbers shelves and alcoves first, and then fits the books into these; and as soon as the books on a subject over-run the space allotted to it, the scheme breaks down. Modern schemes which give a number to each subject, and place that on the books, regard the shelf merely as a sort of railway line on which the train of books runs. Cars may be inserted in the train, or taken away, but it may be moved forward or backward on the line. The notation therefore must not only permit the addition of books without limit on a subject already in the scheme, it must be itself *divisible*, to permit the insertion of headings which are sub-divisions of existing ones, or are for entirely new subjects. In theory there are few new subjects, but in practice books constantly occur which call for expansion of the notation. Expansibility, flexibility or adjustability, as this power in a notation is variously called, is therefore the most important of its features.

It is achieved in the Decimal classification by the character of the notation itself. Every one of the main class numbers 0-9 is divisible by 0-9, and these again by 0-9 and so on to any extent. Similarly in the Expansive classification the main class letters A-Z are each divisible by A-Z and again to any extent. In the Subject classification the initial letters of the main classes A-X¹ have *each* a numerical sub-division 000-999, a sequence of a thousand numbers in which gaps are left for insertions,

¹ Y-Z are not employed.

and if still further sub-division is necessary these numbers may be decimalized thus :

K951 Catholic Apostolic Church.

K9510 Christadelphians.

K9511 Christian Strugglers.

K952 Christian Endeavour Society.

and each number may be re-divided as required. In the Congress Classification the main class letters A—Z are divided first by a second letter, A—Z, and then by numerical sub-divisions in ordinary progression from 1-9999 with gaps for insertions. A typical number can be shown thus :

P Language.

PD German philology.

PD1 Periodicals: American and English.

PD2 French,

etc.

PD601 Lexicography Collections.

PD611 Treatises.

PD625 Dictionaries.

PD1031 Old German Dialects: General.

PD1101 Gothic: Periodicals.

and so on, with further sub-divisions to show alphabetical, chronological or other order. It is contemplated that the numbers may be decimalized when they are exhausted in their present form.

58. A quality in notation that is much appreciated by classifiers, if not always by readers, is its memory (mnemonic) value: a value which rises from the principle that a term, wherever it is noted, shall have the same number. Sub-divisions which recur throughout a scheme and are applicable to any subject are called *common sub-divisions*. These always have the same number, as, of course, they have the same meaning, and thus are mnemonic. Examples for form sub-divisions, linguistic, and geographical numbers have been described already in paragraphs 45-8. There it was seen that every form—1 theory, 3 dictionaries, 9 history, etc.—has a constant number; thus:

700 Art, General.

300 Sociology, General.

701 Theory of Art.	301 Theory of Sociology.
703 Dictionaries of Art.	303 Dictionaries of Sociology.
709 History of Art.	309 History of Sociology.

and the numbers preceded by the cipher remain constant wherever applied. Similarly the forms—1 Poetry, 2 Drama, 3 Fiction, 4 Essays, etc.—in the Literature class have also constant numbers; thus:

820 English Literature.	830 German Literature.	895·6 Japanese Literature.
821 Poetry.	831 Poetry.	895·61 Poetry.
822 Drama.	832 Drama.	895·62 Drama.
823 Fiction.	833 Fiction.	895·63 Fiction.
824 Essays.	834 Essays.	895·64 Essays.

and so on. An examination of these numbers shows that a language has also a constant number; i.e. English is always 2, German 3, French 4 and so on; thus 42 is the English Language, 82 is English Literature, and the biography of an English writer is 928·2. Of mnemonic numbers, other than the common sub-divisions, the most important are probably the geographical numbers which are attached to every scheme. In Dewey they are the numbers 930-999. The figures after the initial 9 (which means history) stand for places, the first number being generally the continent number, the second the country, with sub-divisions for lesser places as required; thus:

9	History.
94	Europe.
942	England.
942·1	London.
942·2	South-Eastern Counties.
942·21	Surrey.

Omitting the initial 9 these numbers may be used to qualify any subject number that it is convenient to show in a local relation; thus:

94	History of Europe.
----	--------------------

914	Travel in Europe.
550	Geology.
554	Geology of Europe.
554 ²	Geology of England.
554 ²¹	Geology of Surrey.

and thus with many subjects. These subjects are indicated in the Classification; other local sub-divisions are made by adding the common sub-division 09 (which means history or local treatment) to any number not indicated, and dividing as above.

In connexion with the Expansive system there is a special Local List consisting of a series of numbers for places which can be applied anywhere, in which, for example, 11 is the World, 21 Australia, 30 Europe, 39 France and 45 England, and the notation is used thus:

F History. F39 French history. F45 English history.
X Language. X39 French language. X45 English language.

Bliss, as we saw, in Section 48, has an alphabetical table for his geographical sub-divisions. The Brown Subject Classification has also a geographical table in the schedules; thus U830 is Surrey, which can be used thus:

U830	Surrey.
U830.10	History.
E172	Geology.
E172U83	Geology of Surrey.
L185	Freemasonry.
L185U83	Freemasonry of Surrey.

The point in all these examples is that the place number is constant wherever applied and when once learned time is saved in the work of classifying. The advantage is of some value but that value need not be exaggerated. Most of our examples from Dewey show, what it is important to remember, that while subjects have a constant number, numbers have many meanings; i.e., Asia is always 5, but 5 is not always Asia; England is always 42, but 42 may be several things. A brief examination of schemes and a little thought will show that it must necessarily be so.

59. Perhaps the most elaborate series of mnemonic signs auxiliary to notation are those designed as common sub-divisions for the elaborate expansion of Dewey now known as the Universal Decimal Classification. These are known as *relation marks*.¹ (I have translated the following from the first fascicule of the *Classification Décimale*, published by the Institut. Those who read French are recommended to obtain this fascicule.)

"The auxiliary tables are as follows. They are each indicated by conventional bibliographical signs:

I. Sub-divisions of Form and General Works	(0)
II. Sub-divisions of Place	(2 to 9)
III. Sub-divisions of Language	= 2—9
IV. Sub-divisions of Time	" . . . "
V. Sub-divisions of Points of View	. . . 00
VI. Sub-divisions of Relations	:
VII. Sub-divisions of Proper Names	A-Z

"The signs of combination which enter into the formation of the number are designed to distinguish clearly the different parts of the number to prevent confusion between, the respective figures, and to make possible the indefinite development by direct decimal division of the numbers of the classification with which they combine.

"The combining signs and the letters which characterize the common sub-division form, with the figures 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a single series of classification symbols which follow the subjoined order of succession;

(), " ", =, :, —, A-Z, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

The common sub-divisions enumerated in the auxiliary tables may be combined, term by term, with the divisions of the principal table. Take these sub-divisions:

(05)	Reviews of
(44)	France
= 3	In the German Language
" 17"	Eighteenth Century.

By combination with the numbers of the heads of the principal tables we shall obtain:

¹ See details in Chapter XIII below.

53 (05)	Reviews of Physics.
385 (44)	Railways of France.
220.5 = 3	Versions of the Bible in German.
338.8 "17"	Trusts in the eighteenth century.

and so on."

The study of these and other notations is considered further under the individual schemes in Part II.

60. In the foregoing we have, to some extent, shown how notation permits the *analysis of and the combination of subjects*, but a further explanation may be desirable. Books, as we recognize, are composite things. Typical examples are the following:

Croce's *Ariosto, Shakespeare and Corneille*.
 Allen's *The Place of History in Education*.
 Donnesthorpe's *British Ants*.

Croce's book deals principally with Shakespeare and would be classed with this works, but the other two essays are important and must be recorded. A class-mark (using Dewey) made by the classifier, thus:

$$822.33 + 851.32 + 842.41,$$

indicates that the book is shelved at 822.33, Shakespeare in English drama, but that it has matter on 851.32 Ariosto in Italian poetry, and 842.41 Corneille in French drama, and that entries for the book must be placed in the catalogue under these subjects. Any book of composite character can be subjected to this analysis and the notation permits an easy recording of it. Allen's book is rather different, its subject is apparently history, but it is distinctly a work on education. It can be classed at the study of history, which in Dewey is 907 or, where I think it should go, in education, under subjects of study in the curriculum. It is this second place that best illustrates the combination value of notation. 375 is "curriculum," 375.01-9 "subjects of study"; this 01-9 are the main class numbers of the classification and may be divided like it; and, as 9 is history, the number for our book is 375.9. If the book were "philosophy in education" it would be

375·1, "religion in the curriculum" 379·2 and so on. Donnesthorpe's *British Ants* is an example, the notation of which places the book under Ants, and then re-divides it under the number for Britain (in Dewey England [*sic*]) so :

5	Science.
59	Zoology.
595	Articulates.
595·7	Insects.
595·79	Hymenoptera.
595·796	Ants.
595·79609	Historical or Local treatment.
595·7960942	English ants.

This number is, of course, a long one. It was in order to abbreviate such numbers that several of the changes used in the Brussels classification were made.

61. *Author Marks* are used in some libraries to individualize books after they have been fully classed by subjects. If we have a collection of books classed at (say) Botany, we may desire by means of some addition to the class-symbol to fix them in alphabetical or chronological or some other order. Author order is usually, but not invariably, employed, and the principal and most elaborate form of book-mark for individualizing authors is the Cutter Author Mark. This is fully explained at the end of Cutter's *Expansive Classification: First Six Schemes*, and the marks have also been published separately on folding cards. An extended version by Kate E. Sanborn (Library Bureau, Boston, 1909) differs so considerably from the original as to be virtually a new marking scheme. Neither can be applied effectively without the tables, but the principles on which the marks are based may be explained. The author's name is represented by a single letter if it begins with a consonant other than S, with two letters if with S or a vowel, and the combination Sc is marked with three letters. These letters are followed by a number so arranged that the earlier letters in the alphabet have the lower numbers. Imaginary examples are:

G16 Gardiner. S11 Saint. Sch 51 Schneider.

G42 Gilman.	Sw1 Swain.	Sch 86 Schwartz.
G76 Graham.	Ab2 Abbott.	
	Al2 Aldridge.	

This is added to the classification number after a space, thus:

F45 G16 Gardiner. History of England.

The marks can be added to the notation of any scheme, but we repeat can only be satisfactorily applied from the Cutter's printed tables.¹

62. An English author mark in use in some libraries is that devised in 1900 by L. Stanley Jast,² as a simple alternative to the Cutter mark. The number consists of the first *two* letters of the author's names, and names commencing with the same two letters are distinguished by the figures 1, 2, 3, etc. The alphabetizing is not strict; authors are numbered in the order of their arrival; thus, if Johnson and Joyner have already been marked JO and JO1 respectively, and Jones is added, he is marked JO2, and if Johnson is then added he is JO3. In Fiction and English Literature the first three letters of the name are used with the same sub-divisions. Individual works of an author are marked by the addition of the initial letter of the title after a point, and other titles commencing with the same letter are marked 1, 2, 3, etc., thus, Shakespeare's *Macbeth* is SHA.M, his *Merchant of Venice* SHA.M1 and his *Midsummer Night's Dream* SHA.M2. Collected editions of an author are marked simply by the three letters, but different editions or duplicates are marked by a lower-case letter, a, b, c, etc.; thus SHAA is a second copy of Shakespeare's *Complete Works*, and the principle may be extended to duplicates of individual works; thus SHA.Ma may indicate a second copy of *Macbeth* and SHA.M1a a second copy of *The Merchant of Venice*.

¹ Because of this fact, I hope that the application of these marks will be omitted from examination papers, as there are very few copies of the Cutter or Cutter Sanborn tables in this country.

² Jast, L. S., "A New Book Number" (*Library World*, vol. iii, pp. 120-3? 150-2).

Individual biographies are marked by the first three letters of the biographee with the first letter of the author's name as the work mark; thus, Morley's *Life of Gladstone* is marked GLA.M. If strict alphabetical order is desired as is usually the case—the numbers added to the initials may be treated as decimals; thus:

Harder	HAR2.
Hardman	HAR25.
Hardy, I. D.	HAR3.
Hardy, T.	HAR35.

63. An approximate alphabetical arrangement may be secured by the use of the Merril numbers, which are limited to 100 places. A sample is as follows:

01	A	10	Bix
02	Agre	11	Bou
03	Als	12	Brim
04	Ap	13	Burn
06	B	14	C
07	Ban	15	Carr
08	Bax		etc.

These numbers can be added to any subject number, but in applying them to the Decimal system they should be separated from the subject number by curves or a dash in order that they may not be confused with it. An anglicized version of this number, by James D. Stewart, was published in *The Library Association Record*, vol. 9, pages 244-5, 1907.

When the whole question of author marks has been considered, we think something may be said for using the first three letters of the author's name, without any further refinements; at least where the books are not charged by combined class-marks and author numbers. In many cases author marks are unnecessary, but the time has not come when we should do without them altogether.

64. The chronological arrangement of subjects may be secured by the use of the Biscoe Time numbers, which

provide for arranging books by the years from 1000 B.C. to A.D. 2000, as follows:

A	BC
B	AD 1-999
C	1000-1499
D	1500-1599
E	1600-1699
F	1700-1799
G	1800-1809
H	1810-1819

and so on to Z, which represents 1900-1999. It will be seen that the numbers A—C represent long historical periods in which it is assumed that few books were published, D—F centuries, and G—Z periods of ten years in the two centuries nearest to us—the nineteenth and twentieth. To indicate the exact date of a book we take the letter nearest to the date, omit that part of the date which is indicated by the letter and add the remaining figures of the date: thus:

A 333	= a book published 333 B.C.
B 450	= one published in A.D. 450.
C 275	= one published in 1273.
D 12	= one published in 1512.
H 5	= one published in 1815.

When more than one book in the same class calls for the same number a lower-case letter is added; thus:

Bentley.	Botany 1856 is 580L6.
Hooker.	Botany 1856 is 580L6a.

Various other interesting and suggestive auxiliaries of notation may be found in the respective introductions to the Decimal and Subject classifications.

65. READINGS.

The original introductions to all the schemes, and particularly those of Bliss, Brown, Dewey, and the U.D.C. are the sources of our study, and special note must be made of the contribution notation makes to the whole system of Ranganathan and such new-comers in our field as Farradane. Further studies in

RICHARDSON. *Classification*, Lecture II and the appendix.

MANN. *Introduction to Classification and Cataloguing*.

PHILLIPS. *Primer*.

SAYERS. *Manual of Classification*. Chapters 6-7.

CUTTER. *Expansive Classification*, Part I, appendix, page 139 to end.

BLISS. *Organization of Knowledge in Libraries*. Chapter 3.

RANGANATHAN. *Library Classification: Fundamentals and Procedure*.

66. QUESTIONS.

Work exercises IX-X of Chapter XX.

- (1) What are the purposes of notation?
- (2) Comment on the criteria of a good notation.
- (3) A notation must be flexible. Explain.
- (4) How does a notation show the sequence of a classification?
- (5) The decimal base of notation is said to be narrower than the alphabetical. Is it? Prove your answer, and construct two brief classification schemes for arranging "Photographs of Churches and Ecclesiastical Buildings," one having a decimal, the other an alphabetical base for its notation.
- (6) What special signs of combination have been devised for the Universal Decimal Classification?
- (7) Describe how a notation may be used to combine or to analyse subjects and methods of treatment.
- (8) Give three examples of books classified by Dewey, and individualized by Cutter Author Marks. Explain the process.

PART II THE HISTORY OF LIBRARY CLASSIFICATION

CHAPTER VI

INTRODUCTORY

67. In the following chapters I have endeavoured to give the pedigree of various classifications so far as I could discover it, and have focused the student's attention upon those only which have had influence, because of their makers, or because of their use by many libraries or by one or more very important ones. Thus I have had to abandon a strictly chronological arrangement, my purpose being to deal with each in its *kind*. The main groups are: (1) the early and scholastic schemes, (2) the utilitarian schemes which have no recognizable philosophical basis, and (3) the schemes which have this philosophical basis. As an example, Francis Bacon's Chart of Learning is considered as leading up to the Dewey classification and not in its historic relation to mediæval schemes. Richardson's bibliography in his *Classification* is the best and most convenient chronological list of all the schemes that matter, but as it may be useful for the student to have the historical order before him, a list in that order of the schemes dealt with in the following pages is given below.

68. We study the history of classification because the various schemes proposed do not spring Minerva-like complete from the brains of their makers, but are derived as are all other things. An earlier scheme is often the best key to a later one, and it is the more necessary to

study them because classifiers do not always tell us the derivation of their schemes, or they tell us incompletely. There is also the obvious need for the reasonably equipped librarian to know the history of the instruments which he uses every day and to be able with some exactness to appreciate the virtues and deficiencies of the most important of them. I put these qualities in this order advisedly, for while the student should know the weaknesses of his schemes, he should be well aware of their virtues, because no scheme can exist for long without definite good qualities. Especially is this desirable to-day, when classifications are being, quite rightly, submitted to severe scrutiny by critics who in indicating faults do not always as clearly indicate the compensating advantages. For example, the Dewey classification, if the most modern critics were to be believed, is inconvenient and obsolete, opinions which knowledge of its history and use would modify considerably. Even if a classification which has been used by large libraries, or any number of small ones, is defective, it cannot be scrapped lightly. The cost of applying a more perfect scheme, supposing its existence, is considerable. Moreover, the old classification is probably in use in many published catalogues and other records which would suffer confusion by the change.

69. In this history I shall not go into detail. Schemes for the classification of knowledge, being of small practical value and requiring more time than can be devoted to their consideration, will be ignored henceforth. They have been referred to again and again in the chapters on theory, and a knowledge of the main features of the systems of Linnæus and the Natural System of Botany has been urged (and so much, at least, should be familiar to the student); but as every organized science has its classification and the principles of classification design do not vary, the student is now sufficiently acquainted with such systems. With this narrowing of the field, I still can hope only to be suggestive, not exhaustive. Much the

student must work out personally, but I shall endeavour to give here all necessary indications for his study. One thing, however, I would have him note. The division of schemes into philosophical and practical is simply a convenience for study. They naturally fuse into each other in the modern library scheme. The notion that the two are radically opposed in terminology and other ways is false. In simple practice, some classifiers prefer philosophical order because they think it most useful, and, for precisely the same reason, others would rely upon a grouping based solely on use. This should rid examination papers of such queer statements as "philosophical classifications are good theoretically but not useful," or "this scheme is excellent in theory but fails in practice"—both of which are nonsense.

70. The most complete and useful work on this branch of our subject to its date, 1859, is Edward Edwards's chapter on "Classificatory Systems," in Vol. 2 of his *Memoirs of Libraries*, but it has long been out of print. I have, however, surveyed the ground which appears to me to be essential at sufficient length in the second part of my *Manual of Classification*, which is the fullest work available. Richardson's *Classification*, although it lacks the details of Edwards, has for its appendix the best bibliography of classification. I shall endeavour to explain the systems which have influenced or are used in present libraries, and to trace their antecedents. These are the schemes of Bouilleau, Brunet, Cutter, the Library of Congress, Dewey, the Brussels version of Dewey, Brown, Bliss and Ranganathan. Most accounts of Bacon's Chart are inadequate. It should be read up in Bacon's *Advancement of Learning*, which explains minutely the scheme of classification propounded by the great philosopher. The language and phraseology are necessarily somewhat archaic, but they improve upon acquaintance, and the book is both an excellent conspectus of method and an admirable piece of dialectics. Any English edition will do,

but that edited by W. A. Wright, and published at the Clarendon Press, Oxford, is equipped with useful notes and glossary, as well as a schedule of the classification, and is therefore to be preferred. Brunet may be studied by students who read French in Rouveyres' *Connaissances Nécessaires à un Bibliophile*, vol. 9, pages 25-37. A brief account by Edward McKnight appears in *The Library Association Record*, vol. 6, pages 416-21. The Decimal and Subject schemes must be read in the schemes themselves; access to these is essential. The Expansive scheme must be known in outline; its notation and application understood, and an acquaintance with the tables themselves is desirable. In his second book on classification, *The Organization of Knowledge in Libraries*, 1933, H. E. Bliss deals trenchantly with the Decimal, Expansive, Congress and Brown schemes. It should be read *after* proper acquaintance with the schemes. I have dealt with all these schemes at greater length than is possible here in my *Manual of Classification*, as well as with many of the Special Classifications and special applications of classification which could not be dealt with in a book of this size.

71. The student may read brief accounts of what is done in America in Corinne Bacon's Classification chapter in the *A.L.A. Manual of Library Economy*, and in vol. 2 of the *A.L.A. Survey of Libraries in the United States*. What has been done in the past is admirably suggested by the essays on the subject of classification collected in the volume in the Classics of American Librarianship entitled *The Library and its Contents* (Wilson Co.), edited by Harriet Price Sawyer. The present is reviewed to some extent in the *Cataloguer's and Classifier's Yearbook of the A.L.A.* There is continual discussion of classification in America of which it is always useful to read, but technically British practice seems to be level with American.

Accounts of schemes in such text-books as this are meant to be studied with the schemes themselves. It is

vain labour to read the text-book and to neglect the classification about which it is written. It is now only reasonable that all the main schemes should be available in every library of even moderate size, and I ask the student to compare every description and reference with the scheme under review.

72. CHRONOLOGICAL LIST OF CLASSIFICATION SCHEMES that have interest or importance to-day.

	Assur-bani-pal.
BC 428-347	Plato.
384-322	Aristotle.
260-240	CALLIMACHUS.
AD c305	Porphyry.
c439	Capella.
1266	Roger Bacon.
1498	ALDUS MANUTIUS.
1548	CONRAD GESNER.
1583	LA CROIX DU MAINE.
1587	Christofle de Savigny.
1605	FRANCIS BACON.
1643	Gabriel Naudé.
1678	Jean Garnier.
1679	ISMAEL BOUILLEAU.
1705	Gabriel Martin.
1763	Guillaume De Bure.
1810	JACQUES-CHARLES BRUNET.
1814	Thomas Hartwell Horne.
1836	British Museum.
1859	Edward Edwards.
1870	W. T. HARRIS.
1871	Natale Battezzati.
1876	MELVIL DEWEY— <i>Decimal Classification.</i>
1879	J. Schwartz.
1879-1901	CHARLES AMMI CUTTER— <i>Expansive Classification.</i>
1882	Lloyd P. Smith.
1888	Otto Hartwig.
1890	Léopold Delisle.
1895	Quinn-Brown.

AD 1898	James Duff Brown— <i>Adjustable Classification.</i>
1901	LIBRARY OF CONGRESS.
1905	CLASSIFICATION DÉCIMALE (INSTITUT INTERNATIONAL DE BIBLIOGRAPHIE).
1906	J. D. BROWN— <i>Subject Classification.</i>
1933	HENRY EVELYN BLISS— <i>System of Bibliographic Classification.</i>
1933	S. R. RANGANATHAN— <i>Colon Classification.</i>

CHAPTER VII

EARLY THEORIES AND SCHEMES

73. The history of classification in its widest sense runs parallel with the history of human thought. The early thinkers, like their modern successors, endeavoured to make a complete survey of human thought and knowledge as a preliminary to or as a result of their studies. They endeavoured to map out the territories of the human mind; what had been discovered or imagined, what they knew or imagined, and what they dreamed or supposed might yet come to be; in short, to make a survey and chart of the whole of Being.

They created systems of thought, in which the territories of knowledge (or of things) were placed in relation to one another. These systems, written in outline, are classifications of knowledge. They are also called philosophical classifications, classifications of the sciences, and sometimes, as by Edward Edwards, metaphysical classifications. From the earliest systematic philosophers of whom we have evidence, we have also evidence of their attempts in this direction. Richardson places the beginning of classification at the time when men began to name things. "This act of classification," he writes,

"made the ape a man," but we think, as Richardson does, that it is more useful to trace the beginning of classification systems from Plato, who seems to have divided thought into physics, ethics and logic; and Aristotle, with divisions of knowledge which have been abstracted from his works as follows:

- Practical or Ethics.
 - Economics.
 - Politics.
 - Law.
 - Politics Proper.
- Productive or Creative Art.
- Theoretical.
 - Mathematics.
 - Physics.
 - Theology.

And from these a line of philosopher followers and critics produced their own "microcosms" of knowledge. There were at least thirty worthy schemes before the appearance of that of Francis Bacon in 1605; and it is interesting to note among their makers such names as those of Pliny (A.D. 23-27), Porphyry (c. 300), Bede (673-735), Alcuin (736-804), Roger Bacon (1266), whose version of the Tree of Porphyry, with its interesting series of collocated and properly subordinated classes, is notable:

- Substance.
 - Spiritual.
 - Corporal.
 - Celestial.
 - Terrestrial.
 - Elementary.
 - Mixed.
 - Lifeless.
 - Living.
 - Vegetable.
 - Animal.
 - Irrational.
 - Rational.
 - Man.

which may usefully be compared with the version of the Tree given in paragraph 31, Dante (1297), and Gesner (1548), "the father of bibliographical classification" as we shall see later. Since Bacon the great names in the classification of knowledge are Descartes (1644), Bentham (1816), Coleridge (1817), Hegel (1817), Comte (1822), Herbert Spencer (1864), Stadler (1896), and Karl Pearson (1900). These are only a selection of the more important. Their names are evidence of how perennially interesting the problem has been.

74. THE KINDS OF CLASSIFICATION. *Philosophical, Bibliographical.* As librarians, however, we are concerned with these schemes here only so far as they appear to throw light upon schemes which are used by librarians. All schemes do this to some extent, because it is not to be supposed that any one of these thinkers wove his system out of his inner consciousness only; he follows the others as a rule. The study of them is therefore necessary only so far as it assists our practical purpose, although for its own sake it is very interesting. The practical point is this: there is a whole school of librarians who believe that a library classification is merely a philosophical classification with certain added classes and apparatus, form classes, notations and indexes, which we have already considered in Part I of this book.

75. The oldest philosophical classifiers were also scientists; they worked out their individual sciences and fitted them into their comprehensive scheme or system of knowledge. To-day the spheres of the scientist and of the philosopher have been divided and re-divided, so that we have devotees of single sciences, and parts of sciences. For example, we had formerly a professor of natural philosophy; later his work was divided amongst many professorates, one being of chemistry; now, however, that is far too comprehensive a field, and we have a professor of physical chemistry, whose work may again be subdivided. Each of these scientists has a classification of his own field. That is a *science classification*. All these separate

classifications and similar classifications of every part of human knowledge are combined by the philosopher into one great and comprehensive scheme, in which his main purpose is to show their relations. It follows, then, that if a library classification is an adjusted philosophical classification it must contain the classification of the individual sciences. That ensures that books are arranged in the order in which the scientist himself places the subjects of them; but this also creates one of the difficulties of book classification. With every change in the classification of a science, the corresponding classification of books should change; and this is not always easy or even possible. The difficulty is not vital, although it is real, because a classification can be used so long as its notation permits the insertion of new subjects in proximity to their nearest existing relations.

76. *Utilitarian, Bibliographical.* Opposed to those who base their library classifications on knowledge classification, are those who hold that the classification of subjects is entirely different from the classification of books. They hold, collectively or separately, the following opinions: (1) That books are not subjects, and cannot be arranged in the same way. (2) That the simplest monograph, to quote Jevons's example a book on the steam-engine, may be antiquarian, scientific, technical, economical or even biographical, and to classify under one of these headings is to lose it so far as the rest are concerned. (Indeed, as we have seen, Jevons says it cannot be classified at all.) (3) That a knowledge classification properly carried out, has a great many divisions, sub-divisions and sections on which no literature exists or is likely to exist. It is therefore too detailed, and consequently must have unnecessarily long class-marks, unpractical for library use. (4) A bibliographical classification has a different purpose from a knowledge classification; the philosopher's aim is to discover the relations of things, but that of the librarian is to put books in the order in which readers use and expect to find them. Out of these considerations, which

it is not proposed to discuss, has risen the classifier who seeks to fit books into convenient groups and then to fit these groups together in the manner in which a child fits together the pieces of a jig-saw puzzle. The best defence of this school is to be found in some articles by E. Wyndham Hulme referred to in the list at the end of this chapter. The contrary view is taken, very differently, however, by E. C. Richardson and by Henry E. Bliss.

77. The history of library classification, which is our sole concern hereafter, may therefore be studied in three lines or streams, as it were; they are:

1. Ancient and mediæval schemes, the exact basis of which may be disputed but is of no great matter to-day.
2. Schemes without a philosophical basis.
3. Schemes with such a basis.

78. ANCIENT SCHEMES. *The Schemes of Assyria and Egypt.* To the educated librarian a chaotic assembly of books is unthinkable, and as the earliest librarian often also held the offices of priest, physician, and, as in the case of some Egyptian librarians, statesmen, we may assume his culture to have been exceptional in his day. It is therefore also to be assumed that the temple libraries of the East and of the ancient Mediterranean world were classified. A writer, quoted by Richardson from the *North British Review* (vol. 51, page 168, 1870), shows that in one Assyrian library, poetry was separated from other works, and in another were found twenty-five tablets of which fourteen dealt with terrestrial and eleven with astronomical knowledge, and the astronomical were at least sub-divided into such divisions as Venus, the Planets in general, the Moon and the Comets.

79. John Willis Clark tells us that the clay tablets in the library of King Assur-bani-pal at Kouyunjik on the Tigris, were sorted under the following heads:

History.	Magic.
Law.	Dogma.
Science.	Legends.

and that they were arranged carefully in series and in sequences, and that "there was a general catalogue, and probably a class-catalogue as well."

80. More interesting still is the classification already mentioned, used at the Library of Alexandria by the foremost librarian of antiquity, Callimachus, a Greek scholar and poet who lectured in the suburbs of Alexandria until summoned by Ptolemy Philadelphus to the Museum. He became president of the library there in about 260 B.C., and held office until his death in about 240 B.C. To him perhaps more than to any other is credited the preservation of our knowledge of ancient literature. This he did by the cataloguing and classifying of the books in his library, and he published the results in a great work called *Pinakes*, or *The Tablets*. It was a catalogue in 120 books, or classes, in chronological order with bibliographical annotations. Unfortunately *Pinakes* is lost, but the classification deduced from tradition is based upon the characteristic of "the kind of writer"; thus:

Poets.
Lawmakers.
Philosophers.
Historians.
Rhetoricians (Orators).
Miscellaneous Writers.

There are indications in such fragments as remain of subdivisions; for example, under Poets, Richardson cites Epic, Comic, Tragic and Dithyrambic, and gives a few sub-divisions under other subjects. For our purpose all we need further to know of this fascinating memory of library methodology is that the scheme of Callimachus is merely a utilitarian one.

81. Callimachus is a lonely light across many centuries of darkness in our subject. It is difficult to believe that Greece, which gave us the great system-maker, Aristotle, had libraries in which there was no definite system, but this appears to be so; and the records of the libraries of

Rome are equally barren of particulars of their book-arrangement, although Clarence Eugene Boys, in his *Public Libraries and Literary Culture in Ancient Rome* (University of Chicago Press, 1915), deduces from a study of all the evidence that the following subjects were recognized:

1. Miscellaneous Collections.
2. Special Libraries
 - a. the Sibylline Books
 - b. Unusual Volumes.
3. Poetry.
4. Law.
5. History.
6. Biography.
7. Oratory.
8. Grammar.
9. Private Memoranda.
10. Public Documents

including Edicts, Decrees, Acts, Treaties, Sacred Rights, State Records, and City Surveys.

but this is rather a statement of available literature than a classification of it.

82. MEDIEVAL AND SCHOLASTIC. As an interlude between the ancient and modern, lies the classification of Konrad Gesner (1516-65), which Edward Edwards calls as "the first bibliographical scheme," published with a view to the *use* rather than the sale of books,"¹ the author of which Gesner, a German-Swiss physician, scholar, naturalist and writer, in his forty-nine years, wrote seventy-two substantial works on grammar, botany, medicine and philosophy, kept open house at Zurich though his means were small for all who loved learning, and died ministering to the victims of plague. Of his works that which concerns us is his *Bibliotheca Universalis* (Tiguri, 1545), which was designed in three parts: the first, an alphabetical author list of all books in Latin, Greek and Hebrew, with titles, subjects and annotations;

¹ *Memoirs of Libraries*, v. 2, p. 762, 1859.

the second, entitled "Pandectarum sive partitionum universalum . . . libri XXI" (1548-9), was a systematically classified arrangement of all the books catalogued in the first part with various additions. This was designed in twenty-one books, but nineteen only appeared in this part, the twentieth book, Theology, being published separately in 1849, and the twenty-first, Medicine, not at all. The third part was to be an alphabetical subject-catalogue of the books in the second part, but Gesner ultimately contented himself with a subject-index to Part II. It is Part II, then, the *Pandects*, which contains the classification. It is based on the common mediæval enumeration of liberal studies known as the *Trivium* and *Quadrivium*, about which a word should be said.

83. Martinus Capella wrote in the fifth century, probably before 440, a fantastic romance, *Satyricon*, relating the marriage of Mercury and Philology, who are attended by the seven liberal arts—Grammar, Dialectic, Rhetoric, Geometry, Astronomy and Music. A century after, Cassiodorus handled the same classes, dividing them into two groups: (1) *Artes* or *Scientiæ Sermocinales*, or Word Sciences, and (2) *Disciplinæ* or *Sciences Reales*, or Sciences of Things, which formed the *Trivium* and *Quadrivium* and "definitely established the educational curriculum for the youth of mediæval Europe."¹

84. The seven liberal arts were preparatory disciplines of the mind to the more advanced studies of theology, metaphysics and ethics, and obviously in the making of a system of knowledge Gesner would include these higher studies and other branches of human activity. His classification then, is the *Trivium* and the *Quadrivium* with these scholastic developments, and the whole he calls a classification of "Philosophy," which "comprises the arts and the sciences." In the following table which is merely a list of the twenty-one books of the *Pandects*, it will be seen that he calls the classes 1 to 4 *Sermocinales* (Word Sciences), and that these are the *Trivium* with poetica added; he

¹ Flint. *Classification of the Sciences*, p. 89.

calls classes 5 to 9 *Mathematicæ* (Mathematical Sciences), which are the Quadrivium; for classes 10 to 13, he uses the curious title *Ornantes* (which may mean "Polishing" or "Embellishing" sciences and is not illuminating as a title), and the remaining eight, 14 to 21, are *Substantiales*, which correspond to the higher studies to which the Trivium and Quadrivium lead.

Trivium and Quadrivium.
(*The Seven Liberal Arts.*)

Gesner.

Philosophia.

[Comprehendit artes et scientias]

Trivium (Word
Sciences).

A¹ *Præparantes* (Preparatory studies).

1 Grammar AA *Necessaria* [Necessary studies].

AAA *Sermocinales* [Word studies].

2. Dialectics
(Logic) 1 *Grammatica et Philologia*
[Grammar and Philology].

3 Rhetoric 2 *Dialectica* [Dialectics, Logic and Reasoning].

3 *Rhetorica* [Oratory. Art of Persuasion].

Quadrivium

(Sciences of
Things)

AAB

4 *Poetica* [Poesy. Imaginative Literature].

4 Geometry

Mathematicas [Mathematical Studies]

5 *Arithmetica* [Mathematics].

5 Arithmetic

6 *Geometria, Optica, etc.* [Geometry, optics].

6 Astronomy

7 *Musica* [Music].

7 Music

8 *Astronomia* [Astronomy].

9 *Astrologia* [Astrology].

AB *Ornantes.*

10 *De Divinatione et Magia* [Divination and Magic].

11 *Geographia* [Geography].

12 *Historia* [History].

13 *De diversibus artibus illiteratis, mechanicis, etc.* [Arts, Crafts, Useful Arts].

* ¹ I have added these letters simply to show the subordination of subjects in the classification.

B *Substantiales* [Higher studies to which the others are preparatory].

14 De Naturali philosophia [Natural Philosophy].

15 De prima philosophia, sue metaphysica et Theologia gentilium [Metaphysics. Natural Theology].

16 De morali philosophia [Moral philosophy].

17 De philosophia æconomica [Political philosophy].

18 De re politica id et civili ac militari [Politics. Civil and Military science].

19 De Jurisprudentia [Jurisprudence].

20 De re medica [Medicine].

21 De Theologia christiana [Christian Theology].

85. Gesner was working towards some sort of scientific order, but it is simplest to regard his arrangement as the order in which the successive studies in a university were pursued, and in this way the scheme throws much light on contemporary learning. Gesner is supposed to have had many adaptors or imitators, and a reading of Bliss's admirable chapters in historical classification gives some clue to these; but further study of these is unnecessary at this stage of our subject.

86. The *monastic* libraries of the sixteenth and seventeenth centuries have been described in two useful papers by W. R. B. Prideaux,¹ but classification there is scanty and depends upon the severance of the sheep from the goats, the orthodox from the unorthodox. The *collegiate* press-marking system, as it is sometimes called, is applied in libraries which have a limited stock without much prospect of new books being added. This is not a classification in the sense in which we now study the subject, and in principle it may be described as a series of

¹ *Library Association Record*, v. 6, pp. 129-38, 1904; *ibid.*, v. 11, pp. 152-74, 1909.

bookcases, each of which is given a symbol; each shelf in turn is also given a symbol, and each book has a "press-mark" composed of bookcase and shelf symbols and a running number. A diagram will illustrate.

A THEOLOGY

Book	1	2	3	4	5	6	7	8	&		Shelf A= Fathers.
Book	1	2	3	4	5	6	7	8	&		Shelf B= Councils.
Book	1	2	3	4	5	6	7	8	&		Shelf C= Decretals.
		and	so	on							Shelf D
		thro	ugh	out	the						Shelf E
		book	case								Shelf F
											Shelf G

and the press-mark, AA5, may indicate the fifth book on the first shelf of the first case. It will be seen that the shelves, and not the subjects, are numbered, and the scheme is therefore too rigid for modern use. I introduce it here in order to explain a common arrangement which still persists in certain cathedral and other libraries.

87. READINGS.

BLISS. *Organization of Knowledge*, pp. 311-14, 328-9.

BROWN. *Library Classification. Manual of Classification*. Chapter I.

EDWARDS. *Memoirs of Libraries*, vol. ii, Chapter II.

HULME. *The Principles of Classification*. In *L. A. Record*, v. 13-14, 1911-12.

RICHARDSON. *Classification*. (Consult the Appendix throughout the study of classification history.)

SAYERS. *Manual of Classification*, Chapters X-XI.

88. QUESTIONS.

- (1) Outline the history of classification before Gesner.
- (2) Explain briefly the various *kinds* of classification.
- (3) What was the characteristic of the Scheme of Callimachus?
- (4) What may Capella be said to have contributed to classification?
- (5) How were monastic libraries arranged?
- (6) Give a brief account of Gesner's classification.

CHAPTER VIII

UTILITARIAN SYSTEMS

89. As already defined, a utilitarian classification is one made without reference to any philosophical or scientific basis. A division here and there may prove to be in an order resembling that which the scientist would choose, but that is the result of ordinary thinking or observation on the subject of the division and not of determined arrangement. In the simplest examples, it is merely an arrangement of a few things or subjects in a convenient practical order, as was the case with the scheme which Brown called "one of the earliest examples of rudimentary classification in a catalogue of books," that of Aldus Manutius, 1498, which he used to arrange his *Libri Græci impressi* or sale-list of Greek books from his own printing press, as follows :

- 1 Grammatica.
- 2 Poetica.
- 3 Logica.
- 4 Philosophia.
- 5 Sacra Scriptura.

Except as sorting one kind of book from another in these fields, it has no claim to be a classification in any general sense, and is given here merely because of the name it bears.

90. Between Aldus and Brunet, the most prominent name is probably that of Gabriel Naudé, whose scheme is of this kind. It appeared in his *Bibliothecæ Cordesianæ Catalogus* (Paris, 1643). Its outline is:

Theology.
Medicine.
Bibliography.
Chronology.
History.
Military Art.

Jurisprudence.
Council and Canon Law.
Philosophy.
Politics.
Literature.

It is only of antiquarian interest to-day, although the precepts of its author in his *Advis pour Dresser une Bibliothèque*, which John Evelyn translated, are still worth attention.

91. THE FRENCH SYSTEM. Of this type of classification also is the "French system," or as it is sometimes called, "the scheme of the Paris booksellers." It is somewhat uncertain who was its originator, but French opinion seems to favour Ismail Bouilleau, although claims have been made for his contemporary, the learned Jesuit, Jean Garnier, 1678. Bouilleau constructed a catalogue of the once celebrated library of De Thou which, with the title *Bibliotheca Thuana*, was published under the editorship of Joseph Quesnel in Paris in 1679. It was rehandled by a number of Paris booksellers, principally by Gabriel Martin in an unprecedented series of catalogues issued between 1711 and 1760, and by Guillaume de Bure. It reached its apotheosis when Jacques-Charles Brunet adopted and expanded it to form the basis of the arrangement for the classified part (vol. 6) of his *Manuel du Libraire et d'Amateur de Livres* (Paris, 1810). As this system is the most influential that has emanated from the continent, it will be well to set out the original outline of Bouilleau, Garnier's variant, and the Brunet classification.

Bouilleau.

- I. Theology.
- II. Jurisprudence.
- III. History.
- IV. Philosophy.
- V. Literature.

Garnier.

- I. THEOLOGY.
- II. PHILOSOPHY:
 - 1. Philosophy proper.
 - 2. Mathematics.
- III. MEDICINE.
- IV. LITERATURE:
 - 1. Grammar.
 - 2. Rhetoric.
 - 3. Poetry.
 - 4. Philology.
- V. HISTORY:
 - 1. Geography.
 - 2. Chronology.
 - 3. Universal History.
 - a. Church History.
 - b. Profane History.
 - xiii. Literary History.
 - xiv. Iconography.
 - 4. Natural History.
 - 5. Artificial History.
 - 6. Fabulous History.
- VI. ECONOMY or JURISPRUDENCE.
- VII. HETERODOXY.

J. C. BRUNET'S CLASSIFICATION

(French System, 1810.)

Outline.

- (A) Theology.
 - I. Holy scriptures.
 - II. Liturgy.
 - III. Councils.
 - IV. The Fathers.
 - V. Theologians.
 - (Theology, scholastic, dogmatic, moral, catechetical, homiletic, mystical, polemic, and Christian churches and sects other than Roman.)
 - VI. Singular opinions.
 - VII. Judaism.

VIII. Oriental religions.

IX. Appendix.

(Deists and unbelievers.)

(B) Jurisprudence.

(a) Introduction.

(History, study, philosophy, dictionaries,
general treatises.)

I. National and international.

II. Political.

III. Civil and criminal.

IV. Ecclesiastical or canon law.

(C) Sciences and arts.

I. Philosophical sciences.

II. Physical and chemical sciences.

III. Natural sciences.

IV. Medical sciences.

V. Mathematical sciences.

VI. Appendix to the sciences.

(Occult philosophy, alchemy and astrology.)

VII. Arts.

VIII. Mechanical arts and crafts.

IX. Gymnastics.

X. Games, sports.

(D) Belles-Lettres.

I. Linguistics.

II. Rhetoric.

III. Poetry.

IV. Poetry, dramatic.

V. Prose fiction.

VI. Philology.

VII. Letters.

VIII. Polygraphs.

IX. Collections and extracts.

(E) History.

I. Historical prolegomena.

(Philosophy, study, historical, atlases, dictionaries,
geography and travel, chronology.)

II. History of religions and superstitions.

III. Ancient History.

IV. Modern History.

V. Historical paralipomena.

(Chivalry, public ceremonies, archæology, literary history, biography, bibliography.)

VI. Miscellanies, encyclopædias.

VII. Journals, literary, scientific and political.

92. Claims of a philosophical basis for Brunet's scheme have been made, particularly by Gustav Mouravit, in his *Le Livre et la Petite Bibliothèque d'Amateur*.¹ but in view of its derivation, that basis can only have been accidental. The scheme, and those from which it was derived, are groupings which their makers found practically convenient; scarcely more than that. It commences, as most modern schemes have done, with Theology. Curiously, it does not provide a place for Sociology, except in regard to man as subject to human law in Jurisprudence. There is no very clear division between pure and applied sciences. In Belles-Lettres, answering here to our modern Language and Literature, we have linguistics widely separated from Philology; in History, we have Religions and Superstitions, which would seem to be more clearly allied to Theology.

93. From the French system it seems possible to trace many of the schemes that have been suggested or applied. A few may be mentioned. That unsuccessfully proposed to the British Museum by Thomas Hartwell Horne in his *Outlines for the Classification of a Library* (London, 1925), the main classes of which are Theology and Religion, Jurisprudence, Philosophy, Arts and Trades, History, Literature, is certainly a version of it. Edward Edwards's own scheme for a Town Library in his *Memoirs of Libraries* (London, 1859)—Theology, Philosophy, History, Politics and Commerce, Sciences and Arts, Literature and Polygraphy—has apparently the same derivation. Léopold Delisle, the distinguished Administrator-General of the Bibliothèque Nationale, in his *Instructions Elementaire et Technique pour la Mise et le Maintien des Livres d'une Bibliothèque* (Lille, 1890), describes a scheme which again is •

¹ See my *Manual of Classification*, pp. 97-101.

from the same source. Even the scheme of the British Museum, although it shows other influences, is more nearly related to the French system than to any other. To-day it does not seem possible that this can continue to compare with any of the great classifications, but its importance as a key to some of the great bibliographies of the world justifies our study of it.

94. *The British Museum Scheme* dates from about 1836-8, and is broad and practical, but without any of the refinements introduced by later classifiers. As the scheme used in our largest library, it has necessarily importance for students and for the readers in the Museum itself, but it is not likely to be applied elsewhere. Its outline is:

- I. Theology.
- II. Jurisprudence.
- III. Natural History and Medicine.
- IV. Archæology and the Arts.
- V. Philosophy.
- VI. History.
- VII. Geography.
- VIII. Biography.
- IX. Belles-Lettres.
- X. Philology.

95. Brown, in his *Manual of Library Classification*, pages 45-8, and Dr. Richard Garnett, in the paper cited at the end of this chapter, have given a fuller outline of the scheme. It reflects the old connotations of many of the terms used as names of the main classes. It commences, as Garnett affirmed that all schemes should commence—not quite convincingly as I think—with Theology, and in this class no places are allocated to religions other than Christian, except 182, Scriptures of Non-Christian religions. This may be overcome by mixing Christian and Non-Christian theologies indiscriminately, but that method is radically unsound. Jurisprudence is clear enough in its arrangement, but it is separated, as in the French scheme, by a long interval from the cognate

philosophy of Economics, which appears under Philosophy. Natural History and Medicine is a logically sound class. Archæology and the Arts form an unwieldy class involving several differences from modern systems. Archæology is considered now-a-days by many classifiers to be part of the raw material of History, and Postage Stamps to have some close relation to Currency, and, consequently, to Economics. It is noticeable that Music is a *transitive* or "carrying-over" class between the Fine Arts (Sculpture) and the Recreative Arts (Field Sports), as it partakes of the nature of both fine and recreative art. A similar arrangement is observable in Cutter. The appearance of Useful Arts as a division of Archæology is another example of theory triumphing over practical considerations; the arrangement is inadequate, seeing that this class embraces nearly all the trades and handicrafts of man. Philosophy has largely the Baconian connotation and embraces Civil Philosophy (Economics, Education, Sociology), Mental Philosophy (Philosophy, Logic, Occult Science), Natural Philosophy (Arithmetic, Mechanics, etc.), and probably Chemistry and Photography are regarded as branches of Natural Philosophy. Belles-Lettres is the comprehensive name for Literature and the Book Arts—the great form classes of the scheme. It includes one trade, Typography; but otherwise manages to embrace all the divisions of pure literature, and to fulfil the functions of a generalia class. This most interesting scheme is, as we have said, a survival on larger lines of the classification theories of Bacon and Brunet; it reflects the older scholarship. From the point of view of the librarian of a popular library it seems pedagogical and involved; it recognizes an arbitrary intellectual division of the field of knowledge and has small regard for the natural affinities of the various parts of knowledge. It has been declared to be adequate, however, by the librarians of the British Museum, and the limitations of the scheme are known and are admitted in the words of Dr. Richard Garnett: "The classification of books on the

shelves of the British Museum library does not amount to the enumeration of all the subjects which might suitably be recognized as distinct in a classified catalogue, but only of such as possess sufficient importance to occupy at least one book press of the library. Subjects which from a philosophical point of view, might properly be separated, must in actual library arrangements, be combined for want of room."

96. READINGS.

BLISS. *Organization of Knowledge*, Part IV; and his *Organization of Knowledge in Libraries*, Chapter X.

BROWN. *Manual of Library Classification*, Chapter III, or his *Library Classification*, Chapters II-III.

CIM. *Le Livre*, vol. iv, Chapter III.

EDWARDS. *Memoirs of Libraries*, vol. ii, Chapter II.

GARNETT. On the System of Classifying Books on the shelves followed at the British Museum. In *Transactions of the International Conference of Librarians*. 1877. pp. 108-14, and 188-93.

SAYERS. *Manual of Classification*, Chapter XI.

97. QUESTIONS.

(1) What is the distinction between a philosophical and a utilitarian scheme of classification?

(2) Criticize the defects of Naudé's scheme from the modern standpoint.

(3) Write a history of the scheme of the Paris booksellers.

(4) Apply a decimal notation to Brunet's scheme. Explain the scheme and classify three books by it to show the working of your notation.

(5) Can you trace relationship between the British Museum scheme and that of Brunet?

(6) Classify the following modern books by the outline of Garnier's scheme given in this chapter:

HOLSINGER. *The Mystery of the Trade Depression*.

CHILD. *Elements of Co-ordinate Geometry*.

JOSE. *Australia: human and economic*.

SCOTT. *Living Issues in the New Testament*.

HARTOG. *Brush up Your French*.

CHAPPLE. *Television for the Amateur Constructor*.

CHAPTER IX

THE EXPANSIVE CLASSIFICATION

"No classification can ever be complete since science is never complete."—*Charles Ammi Cutter*.

98. The Library of Congress scheme is usually held to be the greatest and most modern of utilitarian schemes, since it has grown out of the special needs and purposes of its originating library class by class as the books seemed to dictate and as seemed most practical in order to meet the needs of its readers. It has been said that no other library can adopt the scheme effectively as it is really only properly applicable to the Library of Congress. This is an overstatement, but its implications are worth consideration. The scheme, as we shall show in the next chapter, drew its outline in part from other schemes, and particularly from Cutter's Expansive Classification. Cutter's scheme, however, is certainly of the philosophical type, and for the sake of clarity, we consider it and the Congress scheme here separately.

99. The Expansive Classification of Charles Ammi Cutter, which appeared in 1891 is of the inverted Baconian order,¹ its basic classes, being Philosophy, History, Science and Art, and is one of the most scholarly of the schemes that have been designed for application to a general library. It appeared first as *Expansive Classification: Part 1: The First Six Classifications*, and was published by the author at Boston, U.S.A. The name "expansive" is explained by the fact that the classification consists of separate sets of tables, each covering the whole field of knowledge; the first is very broad, and suitable only for application to quite small collections of books; the second is sub-divided at somewhat greater length; the third at still greater length, and so each scheme progresses.

¹ See chapter on "Decimal Classification."

in fullness. "The seventh," wrote Cutter, "is full and minute enough for the British Museum, with a capacity of increase that would accommodate the British Museum raised to the tenth power; for there might be an eighth and a ninth and a tenth table, if need be."¹ It is possible, with certain minor adjustments, to apply the earlier schemes while the library is in its infancy, and to expand to the later schemes with the growth of the collection. This is not to be accepted without reservation so far as the notation is concerned, as the first scheme is:

- A Works of reference and works of a general character.
- B Philosophy and Religion.
- E Historical Sciences.
- H Social Sciences.
- L Sciences and Arts, both Useful and Fine
- X Language.
- Y Literature.
- YF Fiction.

which becomes in the sixth scheme :

- A General Works.
- B Philosophy.
- BR Religion.
- C Christianity.
- D Historical Sciences.
- E Biography.
- F History.
- G Geography and Travels.
- H Social Sciences.
- I Demotics, Sociology.
- J Civics.
- K Legislation.
- L Science and Arts.
- M Natural History.
- N Botany.
- O Zoology.

¹ *Transactions and Proceedings of the Second International Library Conference*, London, 1897, p. 84.

R	Useful Arts, Technology.
S	Constructive Arts.
T	Fabricative Arts.
U	Art of War.
Vv	Athletic and Recreative Arts.
Vp	Fine Arts. Music.
W	Fine Arts.
X	Arts of Communication by Language.

The expansion of the classes is clear; but it will be seen in practical application that if too early a scheme were adopted in the first place:

E Historical Sciences.

would become in the sixth expansion:

D Historical Sciences.

E Biography.

F History.

G Geography and Travels.

and such a development could only be made on the shelves by re-marking most of the class and its divisions. Consequently, although the classification schedules expand one into the other, the notation does not, and in adopting the scheme at the outset the author's injunction: "Be minute, be minute, be not too minute," may well be pondered.

100. In the order of the schedules, the scheme is declared by Cutter to be evolutionary. His own words form the best account. "The expansive classification follows the evolutionary idea throughout in natural history putting the parts of each subject in the order which that theory assigns to their appearance in creation. Its science proceeds from the molecular to the molar, from number and space, through matter and force to matter and life; its botany going up from cryptogams to phanerogams; its zoology from the protozoa to the primates, ending with anthropology. The book arts follow the history of the book from its production (by authorship writing, printing and binding), through its distribution (by publishing and bookselling), to its storage and use

in libraries, public and private, ending with its description, that is bibliography, suitably divided into general, national, subject and selective. Economics, too, have a natural order—population, production, distribution of the things produced, distribution of the returns, property, consumption. Fine arts are grouped into the arts of the solid—the landscape gardening, architecture, sculpture, casting; and the arts of the plane—painting, engraving, etc.; and the mixed arts, being the smaller decorative and semi-industrial arts. Similar examples of logical, or, if you please, natural arrangement, are: putting Bible between Judaism—to which the first part, the Old Testament, belongs—and Christianity, whose sacred book forms the second part; putting Church history between Christian theology and history; putting statistics between geography and economics, since it might have gone in either; putting music between the recreative arts and the fine arts. There are many such transitions, part of them, at least, novel in classification. They are not merely ingenuities, pleasing only to their contriver; they have a certain practical value, since they bring books together, which one may wish to use at the same time.”¹

101. The notation is, generally speaking, a pure alphabetical one; the letters of the alphabet marking the main classes. But, as is inferred in paragraph 54, above, there are not twenty-six main classes; strictly, there are only ten, as in the Dewey scheme, and these are marked as follows:

- A General Works.
- B Philosophy.
- Br Religion.
- D Historical Sciences.
- H Social Sciences.
- L Sciences and Arts.
- R Useful Arts, Technology.
- V Athletic and Recreative Arts.
- Vv Fine Arts. Music.
- X Arts of Communication by Language.

¹ *Ibid.*, pp. 86-7.

The intervening letters are given to the more important divisions. The method of sub-division, as already explained in section 57, is by the addition of letters; thus, every main class may be divided by twenty-six letters of the alphabet, if intercalation is necessary to this extent, and every division by another twenty-six, and the process may be continued as far as desirable. As the length of a notation is governed by the number of main classes, it will be seen that Cutter has a much briefer notation than Dewey.

102. The Form Divisions in the Expansive system resemble Dewey's, and have a numerical notation which is invariable and may be applied to any heading. These are:

- 1 Theory of the subject.
- 2 Bibliography of the subject.
- 3 Biography of the subject.
- 4 History.
- 5 Dictionaries.
- 6 Handbooks, etc.
- 7 Periodicals.
- 8 Societies.
- 9 Collections.

Numbers are also used in the Local List, which is an important part of the scheme. Classes F, History, and G, Geography, are sub-divided by a decimal number, each in practically the same way. Thus, instead of being sub-divided by the addition of letters, as in the other classes, these classes are minutely divided by figures. F without a figure is Universal History; F01 to F07 deal with the *periods* of Universal History, and F11 to F99 with Particular Countries. These numbers have an invariable meaning both History and Geography; thus:

F45 History of England.	G45 Geography of England..
F451 History of British period.	G451 Geography of British period.
F452 History of Norman period.	G452 Geography of Norman period.

and so on. These local numbers may be applied to any part of the system; thus:

Camping out in England VDA45;

i.e. V, Fine and Recreative Arts; VD, Outdoor Sports; VDA, Camping out; 45, England (geographical number). Or, if we desired to arrange it as a feature of *England*, the number might be reversed but should be preceded by the class letter, as G45VDA. This Local List has, therefore, the mnemonic value which belongs to a number which may be applied anywhere in a scheme with an invariable meaning.

103. The Seventh Expansion of the scheme was in progress when Cutter died, and some parts had been issued. The work was continued by experts under the general editorship of his nephew, W. P. Cutter, but sufficient support has not been forthcoming to permit its completion. The first Six schemes are equipped with a relative index; the Seventh has a relative index to each main class, and presents the appearance of a series of very minute special classifications. It was intended to publish a cumulative index of the whole Seventh expansion when the work was completed. Briefly, the Cutter classification, while it does not present the simplicity of notation nor the immediate practical convenience of Dewey's, is probably more perfect as a sample classification scheme of its date, although its order has been severely handled by Bliss,¹ who declares it to be logical and philosophical but not adequately scientific; is equipped with minute directions; is a valuable and erudite work, and it is to be regretted that its unfinished state prevents it from ranking as it deserves among classification systems.

104. READINGS.

CUTTER. *Expansive Classification: The First Six Schemes*, 1891-3.

— *Seventh Scheme*, ed. W. P. Cutter.

— *Expansive Classification*. In *Transactions and Proceedings of the Second International Library Conference*, London, 1897, pages 84-8.

¹ *Organization of Knowledge in Libraries*, pp. 236-41.

- BLISS. *Organization of Knowledge in Libraries*, Chapter XI. A formidable criticism of the order. The notation criticisms do not seem to be so important. Read after Sayers, below.
- BROWN. *Library Classification*, pages 64-8.
- RICHARDSON. *Classification*, pages 118-21.
- SAYERS. *Manual of Classification*, Chapter XV.

105. QUESTIONS.

- (1) The term "expansive" has a rather different meaning in the Cutter scheme from that which is usually given to it in other schemes. Show how this is so.
- (2) Show why it would be an error to employ too early a scheme from Cutter's group for a growing library.
- (3) How are common sub-divisions made in the Expansive Scheme?
- (4) Contrast the notation of Cutter with that of Dewey.
- (5) Explain, with four examples, one of which is to be a work of fiction, the application of the Local List.
- (6) Classify the following books by the outline of the Sixth Scheme given in this chapter:
 - WATERHOUSE. *Zoroastrianism*.
 - EDWARDS. *British Foreign Policy, 1815-1933*.
 - GAYDOUL. *Oral German Composition*.
 - PAVIAN. *Experimental Aerodynamics*.
 - HOLEM. *Modern Photography*.
 - CHURCHILL. *Marlborough: His Life and Times*.

CHAPTER X

THE LIBRARY OF CONGRESS CLASSIFICATION

106. The Library of Congress Classification owes its existence to the fortunate fact that a new library building to house the great library became available at Washington in 1899 or thereabouts. Dr. Herbert Putnam had recently become the Librarian of Congress, and the occasion was, as Putnam himself declared, an unrivalled opportunity, and fortunately the man and the means were there to seize it.

107. The history of the classifications used in the Library of Congress has been told in some detail in W. Dawson Johnston's *History of the Library of Congress*. The library began even more humbly than did our own British Museum Library; and its first classification was by *size*; then the Baconian *Chart* became the basis of the classification; and this, with successive amendments and expansions, was used, though its inadequacy was recognized, until the new library was well in sight. It was seen, however, that if the Library of Congress was to become the first library in the world, as was the ambition, it required a classification more in keeping with modern needs.

108. Dr. Putnam wrote about the scheme in its initial stage:

"The function of a classifier in a library is, in brief, to *arrange* the books on the shelves in an orderly sequence. But in a library which is to be used, and which is to grow, the arrangement must be something more than orderly—it must be *systematic*; and it must be *elastic*; that is 'expansive.' It must bring together books on the *same subject*, and within that subject books by the *same author*; and it must give alphabetic, or, under certain subjects, chronological sequence to the authors. It must also designate each volume by a *symbol*, which will permanently identify its location and yet permit of the *insertion* in the groups of later additions with *their* appropriate symbols, each also self-explanatory and precisely locative. There are many schemes of classification; there are several schemes of notation. The classifier must determine, what, if any, of these, or what combination of them, will be applicable to the particular collection; he must apply this; arrange the books accordingly, and indicate on them and on the shelf-lists which are the records specially in his charge, the precise location of each book, and its particular symbol (class and book number)."¹

¹ Library of Congress. *Report and Manual*, 1901, p. 224. The italics are mine.

That extract from the *Report and Manual of the Librarian of Congress*, 1901, is an excellent summary of our business as classifiers. We may quote Dr. Putnam again briefly as to how it was done:

"The system of classification (to be applied) is one devised from a comparison of existing schemes (including the 'Decimal' and the 'Expansive'), and a consideration of the particular conditions in this Library, the character of its present and probable collections, and of its probable use. It is assumed that the departments of history, political and social science, and certain others will be unusually large. It is assumed that investigators will be more freely admitted to the shelves."

109. A brief account may be given of the classifying process as it began in this period of re-organization in the Library of Congress, as this will show the "method" on which this *utilitarian* classification has been made to grow:

"The books are roughly divided by main classes, as History, Economics, Art, Music, Mathematics, Physics, Chemistry, etc., and distributed to the classifiers for assigning to the special subjects. The classifier ascertains for each book:

(a) The main subject from the author's point of view and from the nature of the contents—sometimes at variance with the language of the title-page.

(b) The main subject from the standpoint of the library (e.g. in a theological library the history of a parish will be classified with church history; in a general library it may be of more value or use with other histories of the place).

(c) The place of that subject in the scheme of classification in use. This an expert classifier usually knows without recourse to the alphabetical index of subjects, but in many cases a glance at the shelf-list or at the books themselves on the shelves is necessary to make sure that the book in hand agrees with the evident character of the other books classified there."

That again sets out what every professional classifier is doing every day, but the process has never been better defined.

110. These extracts show that the Library of Congress scheme has grown from actual work in a cataloguing room. The question has always been: what is the subject of the book? How can we make a schedule which will take that subject and show its relations to other subjects to the best effect? This is a much more difficult process than classing books by an existing complete scheme. It has meant the review of the whole field covered by a class every time a subject occurs which is included in or related to it. To quote Putnam again: "The system has not sought to follow strictly the scientific order of subjects. It has sought rather convenient sequence of the various groups, considering them as groups of *books*, not as groups of mere subjects. It has sought to avoid technical, foreign or unusual terms in the designation of these groups. And it has selected for the symbols to denote them:

- (1) for the main classes the single letters of the alphabet;
and
- (2) for the sub-classes these letters combined with a numeral, in ordinary sequence.

Provision for the insertion of future groups is:

- (1) in intervening numbers as yet unused;
- (2) in the possible use of decimals;
- (3) in the possible combination of a lower-case [small, non-capital] letter with the single letter used alone at present. "To a certain degree classification by *form* rather than by subject may prove convenient in this Library. The documents may be kept together and the (Smithsonian) scientific serials."

111. The classification was built up by a corps of classifiers, each a specialist in his subject. In having at its service a number of expert classifiers, the Library of Congress has been unique in library history; in some

ways it is the best staffed library from the technical point of view in the world. Each of these specialists worked over the books on his speciality and arranged them first in what appeared to be their most practical groups; the most important group being that which represented the way in which people usually asked for books or made use of them. He then sub-divided them as minutely as possible into the component subjects. Some of these subdivisions he made chronological, some geographical, some alphabetical, and some he made by form.

112. It must not be supposed, however, that each of the classifiers worked his subject irrespective of the others. That is clearly absurd from any point of view; but it is enough to say that the outline of the classification was determined in 1901,¹ and the entire classification has taken nearly forty years to reach approximate completion. A single mind must have settled the outline of the classification, and made it apart from books, and so, like all other classifications which have any claim to our consideration, it was worked to a theory, to a ground plan or outline constructed mentally by the initiator of the scheme. This must make in the end for the completeness of the scheme and the avoidance of cross-divisions in the separate classes. Indeed, Mr. Arthur J. Hawkes, who has spent the last twenty years in working the system, writes about the classification: "No one writing in England," he says, in a recent letter to me, "has yet properly appreciated the underlying philosophy of the Library of Congress scheme or its far-reaching consequences in the practical application of book classification; it is the only rational book classification scheme yet devised. Of course, it has its drawbacks, its errors of judgment, and its inconsistencies; yet for sanity and practicality it cannot be approached by any other scheme." These, of course, are the words of an enthusiast, nor do I think they can be justified in their entirety, but they do emphasize the point I have just made that although the details of the Library

¹ The Outline was published in 1910, reprinted 1919, revised 1925, and further enlarged 1942.

of Congress scheme were worked out separately by separate classifiers, there is a connection between all the parts of the classification, as Mr. Hawkes suggests.

113. Although other schemes were examined, that of Cutter had most direct influence, as the comparative outlines show :

EXPANSIVE SYSTEM.		CONGRESS SYSTEM.	
A	General Works.	A	General Works. Poly-
B	Philosophy.		graphy.
Br	Religion.	B	Philosophy.
C	Christianity.	BL	Religion.
D	Historical Sciences.	C	History—auxiliary.
E	Biography.		Sciences.
F	History.	D	History and Topography
	Geography and		(excluding America).
	Travels.	E	America (general) and
H	Social Sciences.		U.S. (general).
I	Demotics.	F	United States (local) and
J	Civics.		American outside of
K	Legislation.		U.S.
L	Sciences and Arts.	G	Geography.
M	Natural History.	H	Social Sciences.
N	Botany.	HB	Economics.
O	Zoology.	HM	Sociology.
R	Useful Arts.	J	Political Science.
S	Constructive Arts.	K	Law.
T	Fabricative Arts.	L	Education.
U	Art of War.	M	Music.
V	Athletic and Recreative	N	Fine Arts.
	Arts.	P	Language and Literature
Vv	Fine Arts, Music.		Literary History.
W	Fine Arts.	Q	Science.
X	Arts of Communication	R	Medicine.
	by Language.	S	Agriculture, Plant and
			Animal Industry.
		T	Technology.
		U	Military Science.
		V	Naval Science.
		Z	Bibliography and
			Library Science.

The classes start off in the same manner, A and B correspond and so does H, and the differences may be thought to proceed from the *purpose* of the later scheme, which it is well to emphasize was made *for the Library of Congress*; that is to say, it is the scheme primarily for the use of a legislature. Although, of course, the Library of Congress is a national library, performing the functions of our British Museum, in that it collects all books published in the country, and also the representative literature in manuscript, engraved and printed form of the world, it has also the functions to perform of the libraries of our House of Lords and House of Commons. This suggests that the subjects which are likely to be of interest and value to legislators will be those most strongly represented in the library. The outline we are considering proves this to be the case; the historical, social and judicial sciences bulk in it largely, and America, for example, has two whole classes, as is just and proper in the circumstances; military and naval sciences are also fully dealt with, and so is agriculture, all great national subjects.

114. While, then, the classification is a derivative of Cutter's Expansive Classification, it is only in regard to a few suggestions that it is so. Cutter determined to some extent the order of the main classes. Cutter also suggested letters of the alphabet as the initial mark for main classes. Cutter author-marks are used in several classes of the scheme for the alphabetic arrangement of works which are best kept in author order.

115. The main tables of the scheme were published a class at a time, each class occupying one volume. The smallest class (or, rather, sub-division), Folk-lore and its Auxiliaries, occupies 43 pages, and the largest are H, Social Science, 597 pages, and D, Universal and Old-World History, 633 pages. Altogether in 1929 the twenty-odd volumes of the system ran to over 5,000 printed pages, which figures give some notion of its mere physical bulk. The fluidity of the classification is

a to-be-expected but quite notable feature. The classes that have already been revised are:

H	Social Science	Ed. 2.	1920.
J	Political Science	Ed. 2.	1924.
L	Education	Ed. 2.	1929.
M	Music	Ed. 2.	1917.
N	Fine Arts	Ed. 3.	1922.
Q	Science	Ed. 3.	1921.
R	Medicine	Ed. 2.	1921.
T	Technology	Ed. 2.	1922.
Z	Bibliography and Library Science	Ed. 3.	1926.

This coincides with the experience of the average librarian. It is in these classes, except in Fiction and its auxiliaries—especially in Science and its applications in Art and in Medicine and Technology—that most movement is made and most new literature published. The means at the disposal of the Library of Congress for the republication of revised tables when they are necessary is one of the most fortunate circumstances of the scheme, enabling it to keep abreast of all subjects moderately well.¹

116. The principles of arrangement of the individual classes so far as we are able to show them are as follows:

(1) *General form divisions* which consist of periodicals, societies, collections, dictionaries, etc., very much like those found in other classifications. It is argued that the placing of form divisions at the head of a class is not only a logical arrangement but it makes visible to the user of the shelves the beginning of a new subject.

(2) *Theory and philosophy.*

(3) *History.*

(4) *Treatises. General Works.*

(5) *Law. Regulation. State Relation.*

(6) *Study and Teaching.*

(7) *Special subjects and sub-divisions of subjects, progressive from the more general to the specific as far as is possible in logical order.*

117. A classification order reached on the principle of trial and error such as is employed is difficult to set down

¹ Class K, Law, has not been published.

in any useful way in a text-book; although elsewhere it has been attempted, not very successfully. If the preceding paragraphs are studied carefully *with the scheme*, its many ramifications may be seen, but they cannot be brought to a neatly compacted statement such as can be made of Cutter, Brown, and Dewey. To repeat to some extent: the *notation* employs as its initial basis—that is, to mark main classes—all the letters of the alphabet singly (A–Z), except I and O (which might be confused with J or I, or with nought and, so far, WXY have not been employed). A second letter (AA–AZ to ZA–ZZ) is used to mark main divisions. For further sub-division an arabic number, used in ordinary running sequence but capable of being expanded decimally if necessary, is added (1–9999). If all the possibilities are summed up it is seen that, before decimal division is resorted to, an expansion of approximately 20 main classes with 20 divisions, each divided into ten thousand numbers, is possible; that is to say, altogether about 4,000,000 places can be provided if the letters mentioned as left out, are left out in both main class and division. Many of the number sequences, however, so far are not fully employed, and many gaps are left for insertions of subject numbers; and, on the other hand, auxiliary divisional figures and letters give further expansions. Class H, Social Sciences—a very important subject in a Congressional library—may be studied for examples. The synopsis is as follows:

SOCIAL SCIENCES.

- H General.
- HA Statistics.

ECONOMICS.

- HB Economic Theory.
- HC–HD Economic History.
 - (i.e. HC National Production, Economic Conditions
 - HD Agriculture and Industries, Land, etc.).

HE	Transportation and Communication.
HF	Commerce, including Tariff.
HG	Finance.
HJ	Public Finance.

SOCIOLOGY.

HM	General. Theory.
HN	Social History, etc.

Sub-division proceeds as indicated above (section 116). The general form divisions resemble those in other classifications in purpose, and to some extent in the terms used, but they are "adaptive" in that they are repeated wherever they are needed with different numbers and slightly different phrasing to meet the requirement of various subjects; thus:

GENERAL.		AGRICULTURE AND INDUSTRIES.	
H	1-8 Periodicals.	HD	Theories.
	9 Year Books.	17	Treatises.
	10-19 Societies.	21	General Works.
	21-29 Congresses.	67	Exhibitions.
	31-39 Collections.	101	Periodicals.
	41-49 Encyclopædias.	103	Associations.
	51-53 History.	105	Congresses, etc.
	57-59 Biography.		
	61 Theory.		
	62-69 Study and Teaching.		
	71-79 General Works.		

This inconstant repetition expands the tables enormously but at the same time makes each class a complete entity—the classifier need not, as a rule, refer to other parts of the scheme, when he is using it.

Sample notations of subjects are as follows:

AGRICULTURE.

HD	1405 Congresses.
	1411 General Works.
	1421 Statistics. Tables.
	1425 Theory.

- 1428 International regulation of agriculture.
General.
- 1429 International Institute of Agriculture, Rome.
Documents.
 - A 1-5 Its publications.
 - A 6. Preliminary documents.
 - A 7-Z By country.
- 1430 Non-official.
- 1439 Agricultural credit.
- 1440 By country, A-Z.

Here we see at HD1429-A7-Z and at HD1440 the use of alphabetic tables which are more used in this scheme than in any other before that of Bliss. Some subjects can be better arranged in alphabetical than in class order, as critics of Dewey have pointed out in connexion with his arrangements of Indoor and Outdoor Sports in 790, and other subjects. There are interesting uses of this with geographical numbers; for example, in Class N under Art, arts cities are given alphabetical treatment. Here, to return to H, we have the treatment at HS, Religious Societies:

- HS 1525 Collections.
- 1526 Directories.
- 1529 History.
 - By Church
 - Under each:
 - (1) General.
 - A2-29 Periodicals and Congresses.
 - A3-5 Directories.
 - A6-Z Other.
 - (2) General Societies, A-Z.
 - By country.
 - (3) United States. General.
 - (4) Local.
 - (5) Foreign Local.

and here is a sample from HF, Accounting:

- HF 5667 Auditing.
- 5669 Installation of accounts.

- Special forms.
- 5671 Card system.
- 5673 Columnar and tabular.
- 5677 Loose sheet.
- 5681 Special accounts and books.
 - A4 Adjustment accounts.
 - B2 Balance sheet.
 - B5 Bill book, etc.
 - C4 Cheque book, etc.
- 5686 Special lines of business.
 - A2 Accountants' accounts.
 - A3 Agricultural credit associations.
 - A9 Automobiles.
 - B2 Bakers.
 - C15 Carriage builders, etc.

118. The Library of Congress lays great stress upon grouping every sub-division of a larger subject under countries where possible, and perhaps more than any other classification it shows the relations between different types of material. This is impossible for me to demonstrate without many examples. I would suggest, however, that this point of geographical sub-division should be examined and that the student should seek through any one class for the various ways in which it can be done. Charles Martel, who is responsible for the general working of the Congress scheme, has advised us to study carefully class HG, Money, banking and insurance, in order to see how local numbers work out. As with other formal tables, the method of printing the countries every time geographical arrangement is needed is one more reason why the classification in its printed form is so tremendously lengthy.

119. The special sub-arrangement of the scheme into the alphabetic or geographical or chronological order has given rise to various manipulations of the notation, but these manipulations are never general to the whole classification as are the common sub-divisions and geographical tables of other schemes. Mnemonics therefore play little part in the scheme. Wherever a special sub-divisional table is required, it is constructed and printed. Occasionally,

for the arrangement of authors, what seems to be an adapted Cutter number is used, and notation combinations such as HJ2629-A17 are fairly frequent. This number, by the way, means the Public Revenue of Wales since 1901 = H Social Science, J Public Finance, 2240-352 Public Revenue, Wales is 2629 in that number sequence, and A7-Z, the years from 1901 to the present.

120. Although there are general tables at the end of each printed class which gather together the alphabetic, geographic, and other auxiliary form divisions used in the class, the absence of tables of sub-divisions common to the whole scheme, such as those of Dewey, Cutter, and Bliss, has tended to make the scheme to be a series of great special classifications. While there is undoubted connection between all the main classes of the scheme, it is a loose one. The outline of the classification has, for the reasons given in paragraph 98, above, no recognizable natural or philosophical order, and there is no striving after uniformity of method in the sub-division of the classes. Each class is complete in itself, and may be applied with success to a special collection or library, without reference to the other classes; the special tables are ready for use, if they exist, in the class; if they do not exist, it would seem that the classifier makes them to suit his own needs as he goes along.

121. Each class has an admirably full index which is relative so far as the class indexed is concerned. Each is therefore a complete special classification with index, special tables and all auxiliaries complete. The publication of each class separately enables the revision of any that requires it with the minimum of cost in time and money. There is no general index as yet, there may never be one, to the whole classification.

122. A quotation from E. C. Richardson¹ may do to sum up the system.

"This very full system is being prepared with great care and skill by extremely competent hands, and will, when

¹ Page 141. *Classification: Theoretical and Practical.*

finished and unified, make a formidable rival to the Brussels System for closeness of classification and fullness of index. It gains over the Brussels or the latest expansion of the Dewey in its freedom from some of the old categories, but it is doubtful if the mixed letter and whole number system of notation will suit the average librarian as well as the decimal systems or Brown's method of mixing letters and decimals. Its high scientific qualities and thoroughness with its excellent indexing (which in itself would make a much worse system of notation workable) together with the practical considerations which arise from the Library of Congress card printing work, will probably result in a large use of this system when finished."

In the *Survey of the Libraries of the United States* conducted by the A.L.A. in 1927, we get this information :

- I. The Dewey Classification is used by 96% of the public libraries reporting—by 981 out of 1019 and by 89% of the college and university libraries (223 out of 249).
- II. The Cutter by 20 public libraries and 4 colleges.
- III. The Library of Congress by 3 public libraries (one of which modifies it), 14 college libraries, including some who are reclassifying at the time of report. Some of them, however, make many modifications or use it only in special classes.

In Great Britain, so far as enquiry goes,¹ in about 498 libraries Dewey holds the field, and sixteen use modifications of Dewey. Forty-one use Brown's Subject Classification. One only uses Cutter. Nine libraries use the Library of Congress Scheme. It is used in the National Library of Wales, and in Edinburgh public libraries. At Wigan it is used in the reference departments only. Mr. L. R. McColvin, who worked with the system at Wigan, is of opinion that it is too complex in its notation and in other characteristics for use in ordinary general lending libraries, but Dr. E. A. Savage does not share this view. The classification used by Mr. Headicar at

¹ J. L. Thornton. "Classification in Great Britain: a Brief Survey"—*Library World*, vol. 40, pp. 155-7, 1938.

the British Library of Political Science is an adaptation, and appears to be Library of Congress divisions with a Dewey notation. The scheme is not published.

It will be seen that the writer in *The Library Association Record* a year or so ago, who said that the Dewey Classification was "overshadowed by the Library of Congress Classification" was making his wish father to the thought. Nevertheless, a great classification which appears so late in libraries, must make its way slowly and no doubt many libraries will, in due course, turn to this system, if the challenge now being made by Bliss's *System of Bibliographic Classification*, a more organic scheme, does not prevail against it.

123. READINGS.

LIBRARY OF CONGRESS. *Classification*. 1901.

[One volume of Outline and a separate volume for each major class or division. There is usually a short preface to each volume.]

LIBRARY OF CONGRESS. *Report to the Librarian*, 1901; Part II, *Manual*, pp. 224-43. And later annual reports.

BLISS. *The Organization of Knowledge in Libraries*, Chapter XII.

MARTEL, CHARLES. *The Library of Congress Classification*. In *Essays Offered to Herbert Putnam*, 1929. New Haven: Yale University Press.

— *Classification: a brief conspectus of present day library practice*. In H. P. Sawyer's *The Library and Its Contents*, pp. 255-66. [C.M. is chief catalogue Division at the L. of C. The first paper is an excellent brief account which might be read first in this series of readings.]

RICHARDSON. *Classification*. [Pages on L. C. Classifications differ in each edition.]

SAYERS. *Manual of Classification*, Chapter XVI.

[The chapter, by A. J. Hawkes, is the best account of the Scheme.]

124. QUESTIONS.

(1) What needs of the Library of Congress led it to undertake a new classification scheme?

(2) Comment on the purposes of a classification as enumerated by Dr. Putnam.

(3) How does the L. C. scheme differ in outline from the Expansive scheme, and why?

(4) Write a brief account of the notation.

(5) "There are no common sub-divisions in the L. C. scheme." Is this true?

(6) Classify by the L. C. outline in this chapter, the following books:

COHEN & NAGRE. *Introduction to Logic and Scientific Method.*

KIRKPATRICK. *The Spanish Conquistadors.*

GARRISON. *Introduction to the History of Medicine.*

WELLS. *Experiment in Autobiography.*

REDGROVE. *Practical Commercial Mathematics.*

SUMMERS. *The Restoration Theatre.*

CHAPTER XI

DECIMAL CLASSIFICATION

125. A decimal classification is one in which the decimal system of numbers is applied in one of several possible ways. It has been applied to library rooms and alcoves, as in the system explained briefly by Cim,¹ which was devised for Henry II of France by Lacroix du Maine in 1583 for the "perfect ordering" of a library. This paragon of a library would comprise 10,000 volumes, contained in 100 bookcases, each of which would hold 100 volumes. The decimal character of this shelf arrangement is obvious, but that character does not seem to have extended to the book notation. In outline, the subject order was as follows:

- 1-17 Religion.
- 18-41 Arts and Sciences.
- 42-62 Descriptions of the Universe.
- 65-72 Concerning the Human Race.

and succeeding classes, similarly numbered, dealt with Celebrated Soldiers, the Works of God, and Memories and Miscellany.

¹ *Le Livre*, vol. iv, p. 309.

126. It would be strange if the manifest conveniences of a decimal arrangement of books had not been recognized, and, indeed, in 1859 Edward Edwards declared that the system had "been well known in European libraries for scores of years," but apart from du Maine I have not found an example. Nearly three centuries were to elapse before a book appeared with the title *A Decimal System for the Arrangement and Administration of Libraries*, Boston, 1856, privately printed¹, by Nathaniel Shurtleff. Shurtleff, like du Maine, numbered decimally not the books but the shelves, which were therefore fixed. His method was to arrange the books in alcoves containing ten presses or tiers, each of which contained ten shelves. The books on each shelf were numbered consecutively, "1, 2, 3, 4, 5, 6, etc., so that a press-mark rf_5 , would mean the fifth book on the second shelf of the eleventh tier or press. The units denote shelves and the tens tiers all through the library, giving in one number a double direction to press and shelf."² It will be seen that this fixed shelf method is based on ideas similar to those which produced the collegiate press-marking system, described in paragraph 86. Brown tells us that the system was at one time used in Boston public library.

127. Two other decimal systems may be mentioned in passing. At the Bodleian Library in the years 1844-80 an interesting scheme of notation was employed of which Rutherford Purnell says: "However early Mr. Dewey's experiments began, I do not think they could have begun as early as this. And yet the principle is identical."³ Brown also describes a method of decimal arrangement, this time like du Maine and Shurtleff confined to shelf-numbering, which was used in the eighties in the Mitchell Library, Glasgow. He writes: "Its shelves are numbered consecutively throughout in tiers of ten, but no marking is used for the different presses. Each book is numbered in order of receipt in a book of progressive numbers called

¹ The only original copy of this I have seen is now in the Wigan Public Libraries. The Library Association has a typewritten copy.

² Brown. *Manual of Classification*, p. 21.

³ Purnell. *Development of Notation*. *The Library Assistant*, vol. viii, p. 30.

a Location Book, which has columns ruled to show the shelf numbers or place of each book as well as its author and title. A certain number of shelves or tiers is assigned to each class of books, and on these shelves a fairly close subject classification is maintained."

128. All these methods, however, are only of historical interest to-day, and when we use the term Decimal Classification, we think of the system devised by Melvil Dewey and first published by him in 1875. In considering Dewey, however, from the angle until now used, we are focusing attention too exclusively upon the notation. The Decimal Classification is an "inverted Baconian classification," a name which must be explained.

129. *The Baconian Classification.* Of all philosophical schemes of thought, or classifications of knowledge, that which has had by far the most influence on library classification is the so-called "chart of learning" which can be deduced from Francis Bacon's *Advancement of Learning*, 1605.¹ In this, as preliminary to his own philosophical system, Bacon attempted to plot out the fields of knowledge which men had conquered and in doing so, with remarkable prevision, was able to show the parts they had yet to conquer. This chart, or classification, he based upon the mental faculties. He writes of "the commencement of the intellectual process":

"The sense, which is the door of the intellect, is affected by individuals only. The images of these individuals—that is the impression which they make on the sense—fix themselves in the memory, and pass into it in the first instance entire as it were, just as they come. These the human mind proceeds to review and ruminate; and thereupon, either simply rehearses them, or makes fanciful imitations of them, or analyses and classifies them. Wherefore, from these three fountains, Memory, Imagination and Reason, flow these

¹ Subsequent editions 1929, 1933. An enlarged version in Latin, *De Dignitate et Augmentis Scientiarum*, appeared in 1623, of which Spedding's translation (Works of Bacon, vol. iv.), 1854, is the best available. The edition of the *Advancement* by W. A. Wright, Clarendon Press, 1876, has a convenient folding chart, and that by Thomas Case, in the World's Classics, Oxford University Press is good.

three emanations, History, Poesy and Philosophy; and there can be no others. For I consider history and experience to be the same thing, as also philosophy and the sciences."¹

Simply then, Bacon recognizes three distinct human faculties, memory, imagination, and reason, which being applied to observed things produce literary effects in books or studies of History, Poesy, and Reason. On this basis, Bacon draws up his classification, and it is particularly necessary to observe the last phrase of the quoted statement which avers that philosophy comprises the sciences. Of the validity of Bacon's theory, there are, of course, grave doubts, seeing that human faculties are not in the separate compartments to which he assigns them; but that is a matter of speculative theory outside our present scope. For us the point is that the classification thus foreshadowed and worked out in *The Advancement* was used in several important libraries for book arrangement, and was the classification of the Library of Congress in its first hundred years. The outline arranged as a modern schedule is as follows:

BACON'S CLASSIFICATION OF LEARNING

HISTORY (MEMORY).

NATURAL HISTORY.

History of generations.

(Heavenly bodies, earth and sea, "masses" or "greater colleges"—i.e. the four elements, "species" or "lesser colleges"—i.e. zoology and botany.)

History of pretergenerations.

"Irregulars" of nature, such as monsters, witchcraft, and marvels.

History of arts (nature wrought or mechanical).

CIVIL HISTORY.

Ecclesiastical.

Special.

History of prophecy.

Divine judgments or Providence.

¹ *De Augmentis*. Spedding's edition of Works, vol. iv, pp. 292-3.

AN INTRODUCTION TO

Civil history (proper).

Memorials (preparatory history).

Commentaries.

("C. set down a bare continuance and tissue of actions and events, without causes and pretexts.")

Registers.

(Here come the public acts, edicts, etc.)

Antiquities.

Perfect history.

Chronicles.

Universal.

Annals.

Journals.

Particular.

Annals.

Journals.

Lives.

Relations.

Cosmography.

(Geography, navigation, climate, geography and astronomy combined).

Learning and the arts.

Appendices to history.

Orations.

Letters.

Apophthegms.

POESY (IMAGINATION).

NARRATIVE.

DRAMATIC.

PARABOLICAL.

(i.e. fables, allegory).

PHILOSOPHY (REASON).

DIVINE (natural theology).

NATURAL.

Speculative.

Primary philosophy.

Physic.

(Includes astronomy and astrology).

First principles of things.

Fabric of things or the world.

Variety of things.

Concrete.

(Divided like natural history.)

Abstract.

Configurations of matter.

(Rather *states* of matter).

Motions.

(Attraction and repulsion, etc.).

Metaphysic.

Operative.

Mechanic.

(Applied physic).

Magic.

(applied metaphysic).

Mathematic.

Pure.

Mixed.

HUMAN.

Philosophy of humanity.

(Man as an individual).

Nature or state of man.

(Includes miseries and prerogatives of his state and *mind and body*).

Body.

Medicine.

Cosmetic.

(Personal hygiene).

Athletic.

Voluptuary (sensual arts).

Painting.

Music.

Other arts of pleasure.

Soul.

Breath of life (rational soul).

Sensible or produced soul.

Motion.

Sense.

Substance and faculties.

Use and objects of the faculties.

AN INTRODUCTION TO

Logic.

Art of discovering.

Art of judging.

Art of retaining (memory).

Art of transmitting.

(Here come grammar, speech, writing, rhetoric).

Ethic.

Philosophy, civil.

(Man in society).

Conversation.

(Includes etiquette and manners).

Negotiation.

(Conduct of business, personal fortune and advancement).

Empire or state government.

(Includes economics and law).

130. In *The Advancement of Learning* Bacon has expounded the principles of his system at length, explaining most of the terms which time has rendered unfamiliar or of which the meaning has changed. I shall therefore content myself with a few brief remarks on the scheme and at the same time direct the student to the work mentioned. History has a wider connotation than now; it includes Natural and Civil History, and the latter includes not only Ecclesiastical History but Literary History as well. Natural History has a curious extension over the sciences now denominated Astronomy, Geology, Physical Geography, and Biology, with their divisions; over the irregularities of nature; and also, it should specially be noted, over the Arts now called Useful Arts, Technology, etc. Civil History and its sub-divisions seem clear. Note, however, that Biography (Lives) is included in it, as in Dewey and other modern schemes; as also personal memoirs of particular events (Relations); and that Oratory, Letters, and Aphorisms, Proverbs and Maxims (Apophthegms) are considered as being related to History. Poesy embraces all works of imagination irrespective of form; that is to say, whether in prose or

verse, narrative, dramatic, or lyric. Note carefully the distinction between narrative poetry and poetry in parable form. Philosophy is an important class. Its divisions are Divine, Natural, and Human Philosophy. Natural Philosophy is Speculative, Operative, and Mathematical, and has the old connotation of the term; that is to say, it takes in physics and metaphysics, applied physics and metaphysics, and pure and mixed mathematics. Human philosophy has two main aspects, physical (Body) and mental (Soul). Soul as used here may be said to mean "the mind" rather than the "eternal Spirit" of the theologians. Closely cognate to human philosophy is Civil Philosophy, which, being interpreted partly by a modern term, is Sociology.

131. Such a scheme cannot answer modern needs; it is too restricted in its base, quite apart from the fact that Bacon's description of the working of man's faculties in three separate movements cannot be sustained. But its relationship to the Dewey scheme, as shown in paragraph 134, is established and to ignore it—as an otherwise useful guide to library students advises!—is to remain unaware of the only explanation of Dewey's otherwise inexplicable order.

132. READINGS.

BACON. *Advancement of Learning*. Book 2.

FLINT. *Philosophy as a Scientia Scientiarum and a History of Classifications of the Sciences*, pp. 101-13.

BLISS. *Organization of Knowledge and the System of the Sciences*, pp. 316-20.

SAYERS. *Manual of Classification*, Chapter XII.

133. QUESTIONS.

(1) Explain briefly the advantages which Lacroix du Maine expected from his scheme.

(2) What can you say about the scheme of Shurtleff?

(3) What was Bacon's purpose in writing *The Advancement of Learning*?

¹ A useful criticism of the philosophy of the system appears in Flint's *History of the Classifications of the Sciences*.

(4) Explain in your own words Bacon's account of the philosophical basis of his chart.

(5) In what ways does the modern meaning of certain of Bacon's terms differ from his own?

(6) What can you say of the influence of Bacon on library classification?

CHAPTER XII

THE DEWEY CLASSIFICATION

134. Melvil Dewey (1851-1932) was sub-librarian of Amherst College, Massachusetts, when he gave attention to the problem of the classifying of libraries. He tells us that he devoted some six months of "intensive study" to all the systems in vogue, and that he received suggestions from the classifications of Natale Battezzati,¹ of Milan, W. T. Harris, of St. Louis, and Jacob Schwartz. It is difficult to trace any likeness between the schemes of Dewey and of Schwartz, or the variant of Brunet proposed by Battezzati, but we can see that he actually copied that of Harris. W. T. Harris was a distinguished American philosopher and educationist, who devised his inversion and expansion of Bacon's intellectual chart in 1870 for the arrangement of his catalogue of the St. Louis Public School Library. This he afterwards described in *The Journal of Speculative Philosophy*, which he edited.² The outlines of Bacon, Harris, and Dewey will show their relationship.

Harris's use of the term Science instead of Philosophy merely gives Bacon's meaning for modern readers. Art, too, is nearer Bacon's intention nowadays than the somewhat archaic Poesy. It is clear that Harris's outline and Dewey's are the same in all essentials.

These outlines are very interesting to all who care to study the development of our most popular scheme. At

¹ *Nuovo Sistema de Catalogò Bibliografico Generale.*

² Book Classification. *Journal of Speculative Philosophy*, vol. iv, pp. 114-19. 1870.

the same time it should be remembered that the working out of the individual classes in the first instance was done for Dewey largely by the faculties of Amherst College. While Bacon and his successors determined the curious outline, the internal order is really that which subjects were studied in 1876 in a particular college.

Bacon's Outline, 1605.			Harris's Outline, 1870.	Dewey's Outline, 1876.
Mental Faculties	Emanations	Inverted	Science	General Works
Memory	History	Philosophy	Philosophy	Philosophy
	Natural		Religion	Religion
	Civil		Social & Political	Sociology
Imagination	Poesy	Poesy	Science	Philology
	Narrative		Natural Science	Science
	Dramatic		& Useful Arts	Useful Arts
	Parabolic		Art	Fine Arts
Reason	Philosophy	History	Fine Art	Literature
	Divine		Poetry	History
	Natural		Fiction	Geography
	Human		Literary Mis-	Biography
	Theology		cellany	
			History	
			Geography and	
			Travel	
			Civil History	
			Biography	
			Miscellany	

135. The classification was developed early in 1873 and after three years' practical application at Amherst it was published anonymously in 1876 under the title *A Classification and Subject Index for cataloguing and arranging the Books and Pamphlets of a Library* (Amherst, Mass.), and a brief account appeared in the same year in *Public Libraries of the United States of America*, and I have also what is apparently an abridgment, with the title: *Main Divisions/Of a Classification and Subject Index/For Cataloguing and Arranging/the/Books and Pamphlets/of a Library/Melvil Dewey/Amherst, Mass./1876.*

The first edition consisted of 12 pages of introductory matter, 12 pages of tables, 18 pages of index—42 pages in all; and the edition was of a thousand copies. After nine years (1885), a new edition was called for with much expanded tables, which was of 314 pages, and subsequent expansions appeared in 1888, 1891, 1894, 1899, 1911,.

1913, 1915, 1919, 1922, 1927, 1932 and 1942. The first edition had 2,600 index entries, the twelfth 43,000; and the 1944 (14th edition) many thousands more. A survey compiled for the American Library Directory, 1945, showed that 96 per cent of the public libraries reporting, 89 per cent of the college and university libraries, and 64 per cent of the special libraries used the scheme; and that the tables had been translated wholly or in part into 11 languages. No classification has had such a record.

136. The classification is best described in the words Dewey uses in his earliest preface: "The library is first divided into nine special libraries which are called Classes. The Classes are Philosophy, Theology, etc., and are numbered with the nine digits:

0	
1	Philosophy.
2	Theology.
3	Sociology.
4	Philology.
5	Natural Science.
6	Useful Arts.
7	Fine Arts.
8	Literature.
9	History.

"Thus Class 9 is the Library of History; Class 2, the Library of Theology. These special libraries or Classes are then considered independently, and each one is separated again into nine special Divisions of the main subject. These Divisions are again numbered from 1 to 9 as were the classes. Thus 59 is the 9th Division (Zoology) of the 5th Class (Natural Science):

50	Natural Science.
51	Mathematics.
52	Astronomy.
53	Physics.
54	Chemistry.
55	Geology.
56	Palaeontology.
57	Biology.
58	Botany.
59	Zoology.

"A final division is then made by separating each of these Divisions into nine Sections which are numbered the same way with the nine digits. Thus, 513 is the 3rd Section (Geometry) of the 1st Division (Mathematics) of the 5th Class (Natural Science):

510	Mathematics.
511	Arithmetic.
512	Algebra.
513	Geometry. Conic Sections.
514	Trigonometry.
515	Descriptive Geometry.
516	Analytic Geometry. Quarternions.
517	Calculus.
518	[Left blank for new subjects.]
519	Probabilities."

137. These principles have remained constant, but the decimal method envisaged the inevitable development that takes place in a system with the growth of knowledge and its literature; although Dewey reminds us ironically that his modest 12 pages of tables and 1,000 sections were "criticized as altogether too elaborate for even a large library." Dewey always uses a three-figure basis for his notation; thus Science is always written 500, Mathematics 510, Fine Arts 700, and Painting 750, the sub-divisions being written 511, 512, and so on, always maintaining this three-figure *basis*. The zero means that the subject is viewed generally in the books so marked. (It also means that the method of classifying changes at the zero, as we shall see later.) When more minute sub-divisions are required, a decimal point is placed after the third figure—its invariable position in Dewey—and the digits 1-9 are added to give nine further sub-divisions:

500	Science.
510	Mathematics.
512	Algebra.
512.1	Systems of algebra.
512.2	Numeric equations.
512.2	Algebraic equations.

512.4	Series, etc.
512.5	Combinatory analysis.
512.6	Proportion and progression, etc.

and for further division, nine more digits are used, as in :

512.2	Numeric equations.
512.21	Equations, 1st to 4th degrees.
512.22	Higher numeric equations.

and sub-divisions of each of these can be continued by the addition of further digits to any extent that may be required. Dewey's common sub-divisions are :

01	Theory, philosophy or science.	} Of or on any Subject.
02	Outlines, manuals, compends or charts	
03	Dictionaries or cyclopædias	
04	Essays, addresses, tracts, letters	
05	Periodicals, magazines, reviews	
06	Societies, academies, exhibitions, reports of societies	
07	Education, study, teaching, museums, schools	
08	Collected works, collections, extracts, libraries, maxims, miscellaneous, treatises	
09	History	

These are applied anywhere to show the point of view from which the book is written or the form it takes. These common sub-divisions are always preceded by the zero shown, but in main classes and divisions the zero usually forms part of Dewey's three-figure basis, and is already written and must not be repeated. *The zero indicates that the book is a general one on the subject indicated by the figures in front of it, and that the figures after it mean the "form or point of view"; thus :*

5	is General Science.
500	is General Science, written with 3-figure base.
501	Theory of General Science.
51	is Mathematics, Generally.

- 510 is Mathematics, written with 3-figure base.
 510·1 Theory of Mathematics generally.
 512 is Algebra.
 512·01 Theory of Algebra.
 512·2 Numeric equations.
 512·201 Theory of numeric equations.
 512·21 Equations of 1st-4th degrees.
 512·2101 Theory of equations of 1st-4th degrees.

Unless this rule is observed there is possible confusion in the use of the common sub-division numbers.

138. The above are mnemonic characters, of course, and Dewey uses mnemonics freely. The most important are in his *linguistic numbers* in 420-499 Philology, and used with minor modifications in 810-899 Literature, and his *geographical numbers* to be found in the tables for History, 930-999.

139. To take the linguistic numbers first. The comparative outlines of Philology and History show thus:

<i>Philology.</i>		<i>Literature.</i>	
400	General.	800	General.
410	Comparative.	810	American.
420	English.	820	English.
430	German.	830	German.
440	French.	840	French.

and wherever, for example, English occurs, it is always marked 2, French is always 4, and so on. *But* 2 is not always English, or 4 French.

140. The geographical numbers are somewhat similar, but are much more elaborate and should be clearly distinguished. Every continent has a constant number and so has every country; thus:

4 is Europe.	5 Asia.	6 Africa.
41 Scotland.	51 China.	61 N. Africa.
42 England.	52 Japan.	62 Egypt.
43 Germany.	53 Arabia.	63 Abyssinia.

These numbers originate in the class History, and 9 prefixed to them completes the history number, 91 prefixed to them completes the geography; thus 942 is the

History of England, 914·2 is the Geography or Description of England. These numbers may be suffixed to many class numbers, as indicated in Dewey's Table I of the Appendix and in others where required after the Form number 09¹; thus 354 is Administration, 354·42, Administration of England, 354·43, of Germany; Botany is 580, 580·9 is the history of Botany, and 580·942 the history of English Botany, and so on. The number which divides a subject therefore is *all* that part of the number in 930-999, which follows the 9; but it must be understood that the 9 is omitted. It will also be seen that "period division numbers" are almost always unnecessary.

141. Other mnemonic numbers are limited to literary forms and philological forms. Literary forms as a whole apply only to 800 Literature. These are 1 Poetry, 2 Drama, 3 Fiction, 4 Essays, 5 Oratory, 6 Letters, 7 Satire, 8 Miscellany. Thus:

820	English Literature.	840	French Literature.
821	English poetry.	841	French poetry.
822	English drama	842	French drama.
823	English fiction.	843	French fiction.

and so on for all languages. Whenever these forms appear these formal numbers are used. For example, 869 is Portuguese Literature, 869·1 Portuguese Poetry, 891·62 is Irish Literature, 891·622 Irish Drama, and so on for all forms. Philological forms come mainly from class 400, Language; thus 1 Orthography, 2 Etymology, 3 Dictionaries, 4 Synonyms, 5 Grammar, 6 Prosody, 7 Dialects, 8 Texts, thus:

425	English Grammar.
435	German Grammar.
491·75	Russian Grammar.
427	English Dialects.
437	German Dialects.
491·77	Russian Dialects.

Dewey's Table IV is a full list of these.

¹ See paragraphs 58 and 290.

Minor but useful mnemonic devices are shown in such directions as, "divide like general classification"; e.g.

- 220 Bible.
- 220·8 Bible Special topics; here is divided by any number in the schemes representing any biblical subject.
- 220·859 Animals of the Bible.
- 220·878 Music in the Bible, and so on.

See also such divisions "as other classes or other sections" as at numbers 331·76, 658·9 and 560 in the thirteenth edition of the system.

142. Dewey claimed that his original contribution in the scheme was his relative index, "the most important feature of the system." This has already been described, and it has been imitated to some extent by all subsequent makers of systems. Relative, it may be repeated, merely means that each subject which is indexed is shown in its relation to a larger subject (or class or division) or after the entry word the phase of the subject is indicated; thus:

Railroad	
accidents, public health	614·863
transportation	656
Corporations, commerce	385·065
electric	621·33
engineering	625
elevated	625·4
locomotives	621·12
rate regulation	385·13201682
transportation	
business	656
sociology	385

143. The scheme is completed by a lengthy Introduction and a series of Tables. The Introduction explains the scheme and its advantages, and is a valuable account of classificatory practice; the instructions on "assigning class numbers" have been the basis of subsequent practice in most schemes. It is a little repellant to some readers.

owing to Dewey's use of a self-invented method of phonetic spelling to which he was genuinely devoted, but which is greatly disliked by British librarians. One of the Tables, that of geographical division, we have already mentioned; there are also tables of common sub-divisions, greatly expanded in the thirteenth edition; languages, and literatures, as well as the Biscoe and Olin biography book numbers and some special author tables. These help to make the notation more exact and to standardize it.

144. Dewey had no intention of producing a system which should follow the categories of the scholar; he aimed at a practical piece of machinery for the rapid arrangement, filing and finding of books and literary material, and he describes the system as a series of pigeon-holes into which this material may be fitted. He even went so far as to declare that it mattered less in what pigeon-hole a book was put than that all books on the same subject should be placed in the same one and that that one should be indexed. In the paragraphs I have quoted he makes it clear that he regarded the system as one for classifying nine special libraries, and we do get the effect of nine separate classifications conjoined to make the system. It is, therefore, vainly that we seek to find an evolutionary order in the main classes. There is, indeed, a reversed evolutionary order in Zoology, and similar science arrangements are to be discovered; but the class order was determined by its derivation from Bacon. In consequence, Language is separated from its finished form Literature, and History from its collateral Sociology. The working out of the schedules, as already asserted, was the work of the faculties of Amherst College, and represented the state of knowledge in 1873. The order then chosen for these was fixed, and the various expansions that have taken place have not much altered the order of the numbers. It is, therefore, subject to the criticism that in its main characteristics it is not abreast of modern thought. This criticism can be pushed too far, is applicable to every scheme, and is only stated here because the

student must encounter it; may even make it himself. The virtues, however, of the Decimal Classification far outweigh its admitted faults. Its accessibility, its hospitality and flexibility, its splendid notation (albeit as admitted above, it grows lengthy when applied to minute subjects), the constant attention paid to its revision—these factors have given it an unrivalled vogue, and its adoption as the basis of the International Decimal Classification seems to prophecy that it will endure.

A more serious defect in the eyes of many critics is the fact that the scheme always has a limit of nine main classes, nine main divisions, nine sub-divisions, and so on. The limited number is due, of course, to the decimal numbering system (the notation) and it must result in very long numbers for minute subjects. Dewey himself caused some of this congestion by using up nearly all his numbers, sometimes creating unnecessary headings, as at 110-120. It would have been an advantage had he left gaps in his number sequence for new related subjects. He does, however, continue to admit every possible subject by the illimitable possibilities of decimal expansion. Nevertheless, the frequency with which at the end of the divisions the number 9 is given for "other topics" is perhaps unfortunate. Ranganathan advocates a mode of expanding the capacity of the 9 which he calls the *Octave* principle. In any series of sub-divisions the 9 is not used alone but becomes 91 and gives the notation an additional octave capacity; and, if this is insufficient the 91-9 may be followed by 991-99, and so on indefinitely. This device has received favourable mention in connexion with the Universal Decimal Classification from its promoters and will possibly come into use in Documentation classing.

145. Perhaps one proof of this is the number of modifications of the scheme that have been made by librarians. These are attempts to reduce the length of the notation, or to conjoin allied subjects. As a rule, Fiction is removed from the Literature class and arranged as a separate sequence or library under some symbol, such as F. Similarly Biography is removed from 900, is marked B, and

is arranged alphabetically according to the names of the persons whose lives are told. Dewey permits the arrangements of Biography at the number of the subject with which the life is most closely allied; thus, the life of Cromwell may go in the Stuart period of English History, 942.06, the life of Darwin at Evolution, 575, and so on. Some librarians want History and Travel together, and use the numbers from 940-999 for both, some without distinction, others with a T added to the number; thus 942 English History and 942T Travel in England. Others think the 91 symbol too long and substitute T; thus 942 and T42 for English History and Travel respectively. These are samples, and that they can be made without catastrophe is a tribute to, rather than a criticism of the scheme.

146. THE STANDARD (15th) EDITION, 1952, of the D.C. took librarians by surprise as all the number-building devices used in most "Dewey" libraries were based upon the minute sub-divisions and the tables of forms and combination which are an essential part of earlier editions and which justify us in calling the scheme a synthetic one; indeed the precursor of all synthetic schemes. It was an attempt to face the fact that the scheme had grown to gargantuan proportions and for small and medium libraries was becoming too detailed and complex. This was not wholly just as there existed *An Outline (or Primer) Decimal Classification* "for smallest libraries" which ran to four editions from 1921 to 1929. However, we had been promised an edition of the whole that would harmonize as far as possible the orthodox D.C. with the U.D.C. The committee who produced the Standard Edition had other views; they were to pare down the scheme to the essentials on which its users could be expected to be in agreement. The reduction was drastic. The famed introduction with its rules and precepts, the mighty relative index, the minute main tables and all the apparatus of Form sub-division tables that followed the index were sacrificed. In their place we got a slightly more modern

naming of the main classes, i.e. Social Sciences for Sociology, Linguistics for Language, Pure Science for Science, Applied Science for Useful Arts, Arts and Recreation for Fine and Recreative Arts; a relative index, excellent in its very restricted limits and quite inadequate for any but the small library; main tables that are admirably devised, with some clever bringing together of classes, cognate but formerly separated, but with so great reductions that for the ordinary user they are again completely inadequate. Of this the now notorious, "942 England includes Great Britain, Thames River" as the sole geographical division of English history, is the best example. Other countries are treated as parsimoniously.

146.1. These considerations must not blind us to the fact that what has been accomplished is a skilful, workable scheme for the average small American library. The order and spirit of the D.C. remain in it essentially unchanged, and the omissions are in many cases quite sensible. It can be used by any developing library as its primary classing tool because the limited places can be added to by increasing the notation, without alteration of its "stem" numbers. The new introduction provides sensible, if somewhat elementary, advice on classing such as may be addressed to an amateur user. The edition, we are told, has been compiled to a pattern "furnished by instructors in library schools and by librarians in a variety of libraries in North and South America and in Great Britain." In physical appearance, print and comeliness the work is agreeably improved.

146.2. There must be a sixteenth edition, indeed it is contemplated, in which it is hoped that much that has been omitted may be restored in revised form.

146.3. It may be mentioned that the D.C. is now centred in the Library of Congress and that its notation is now given on that library's catalogue cards in addition to L.C. numbers.

147. READINGS.

The literature of the Dewey Decimal Classification is extensive, and much of it deals either with mere outlines, or with minutiae confusing at this stage in our study. The best introductory accounts are in Richardson, Mann and Sayers, as under, and it is suggested that these be read before the introduction to the Decimal Classification itself, which ultimately is the satisfactory account of the system. Bliss is the most destructive of the critics, and should be read only when the system is *known*, but then certainly. The library journals give abundant evidence that criticisms, suggestions about, and emendations of the system are continual.

DEWEY. *Decimal Classification*.

Learn the summary (0-9) outline. Read the introduction, as suggested, and familiarize yourself with the *form* of the printed volume, summaries, main tables, index, and the final special tables.

—The Standard (15th) Edition.

BLISS. *Organization of Knowledge in Libraries*.

The whole book may be considered an indictment of Decimal Classification, but Chapter X in particular.

MANN. *Introduction to Cataloguing and the Classification of Books*. Chapter IV, The Decimal Classification.

RICHARDSON. *Classification*.

SAYERS. *Manual of Classification*. Chapter XIII.

The British National Bibliography entries may be studied for a most competent application of the notation.

Almost every text-book has an elementary account of the scheme.

148. QUESTIONS.

(1) What is the relation of the Baconian classification to that of Dewey?

(2) Describe what is meant by decimal sub-division and show its advantages and disadvantages.

(3) Explain and illustrate by examples the use of the Decimal Classification common sub-divisions.

(4) Geographical and linguistic numbers are an integral part of the scheme. Explain.

(5) Describe the Decimal Classification relative index. Give a summary of its uses as described by Dewey in the introduction to his scheme.

(6) Comment upon Dewey's assertion that "no theoretical refinement has been allowed to modify the scheme, if it would detract from utility or add to its cost."

CHAPTER XIII

THE UNIVERSAL DECIMAL CLASSIFICATION¹

149. The Universal Decimal Classification is the outcome of a great project launched at Brussels in 1895, when an international conference initiated the scheme for a comprehensive classified index to published information. The energizing spirits of this movement were Senator Henri la Fontaine and Paul Otlet, an advocate. From the conference developed two organizations, the Institut International de Bibliographie and the Office International de Bibliographie, which became in effect one, and these were subsidized subsequently by the Belgian Government. From its earliest stages such eminent names as Wilhelm Ostwald and Samuel Scudder have been closely associated with the movement. Messieurs La Fontaine and Otlet remain as General Secretaries at Brussels, with Heer F. Donker Duyvis at The Hague. Latterly the main work of the secretariat has devolved upon the shoulders of the last named, who is also Secretary of the International Commission of the Decimal Classification. The seat of the Institut itself is now at The Hague. Its name became subsequently the Institut International de Documentation. In 1937 a world Congress of Universal Documentation was held in Paris by invitation of the French Government, at which the Institut was unanimously recognized as the international authority in matters of documentation and the Universal Decimal Classification adopted as the standard classification. In recognition of its federative character, the

¹ I am indebted to Dr. S. C. Bradford, who has re-written this chapter.

name of the Institut was changed to *Fédération Internationale de Documentation* (F.I.D.).

149.1. The scope of the index desired includes not merely books and separate documents, but articles containing original information published in periodicals of all times and all countries.

149.2. A central index of this nature was commenced at the Palais Mondial in Brussels. The standard card catalogue was adopted as the medium. The entries of the British Museum *Catalogue of the Printed Books* were cut up and mounted on cards as the basis of the author catalogue. To these were added the entries from the catalogues of other national libraries. To make the subject-index to original articles as well as books—the “inventaire classé du Monde,” as it was called—a very detailed classification was required, and the Dewey Decimal Classification was chosen because its notation of decimal numbers can be regarded as it were as an international language, and because the decimal numbers can be further sub-divided to any desired extent without disturbing the position of the preceding and succeeding numbers. The whole scheme was re-handled by a “great co-operation of experts whose work was directed by the Institut.” Every class was examined, pruned, revised and much expanded, and the remarkable signs of combination, etc., which have been described in paragraph 59, were devised. The result was first published in 1905, and a second edition appeared in 1927–33 (4 vols. in 2 vols.) with the title *Classification Décimale Universelle: tables de classification pour les bibliographies, bibliothèques, archives, administrations, publications, brevets, musées et ensembles d'objets pour toutes les espèces de documentation en général et pour les collections de tout nature. Institut International de Bibliographie, Palais Mondial, Bruxelles*. An examination of this long title shows the enormous capacity of the scheme.

Such a vast index as is contemplated, could not be attempted as the work of a single institution. The col-

laboration of indexing bodies throughout the world is necessary. So far as these are willing to adopt the standard classification, their catalogues, abstracts and index references are cut up, mounted on cards and intercalated in the central card catalogue. This index is intended to cover all subjects, but lack of funds for the provision of qualified personnel has curtailed its usefulness considerably. However, a comprehensive index covering science and technology has been developed at the Science Library since 1927. In 1938 this index comprised two and a half million cards, which were growing at the rate of 150,000 entries annually. The scientific personnel of the library are able to advise readers in the use of the index, and to supply bibliographies on sufficiently restricted subjects free of charge.

149.3. With the inauguration of the scheme, a series of extensive bibliographies was commenced. These included, among others, a series of biological bibliographies on cards, known as the *Bibliographia Physiologica*, the *Bibliographia Zoologica* and the *Bibliographia Anatomica* published by the *Concilium Bibliographicum* at Zurich with the collaboration of the American Association for the Advancement of Science. Although the *Bibliographia Physiologica* has been suspended recently, the other portions continue to constitute one of the most valuable bibliographies of any subject ever issued.

149.4. When the necessary development of the classification had been completed, an extensive Engineering bibliography was commenced under the title "*Revue de l'Ingénieur et Index Technique*." This became subsequently the "*Mededeelingen*" of the Dutch Institute of Documentation, and recently the "*Repertorium Technicum*." This is a most extensive bibliography comprising about forty thousand references a year. As these are all classified minutely, the entries can be cut up and mounted to form a most valuable cumulative index to engineering literature.

149.5. The first publication to adopt the Decimal .

Classification in this country was *Natural Science*, which, through the initiative of Dr. Bather, began in 1896 the addition of Decimal numbers to its articles, in order "to prepare the way for that bibliographical reform, which all admit to be an urgent need."

149.6. Bibliographies of many other sciences were commenced, and continue to grow in number. The flexibility of the system of classification and the continual revision to which it is subjected make it a suitable tool for the indexing of information and even objects of every kind. It is employed in many special libraries and some national libraries throughout the world. On the Continent, the revised edition takes the place of the Dewey Classification in municipal libraries. The International Federation for Documentation has national sections in different countries, of which the British Society for International Bibliography is the English representative, which has long been associated with the Science Library, South Kensington. The third edition is being published in German under the auspices of the German Government; section 5, has appeared already. The fourth edition is in the English language of which Volume I, Fascicule 1, Auxiliary Tables, Fascicule 2, Generalities, and part of Volume II, Fascicule 3, containing 54, Chemistry, were published by 1939, when war brought delay. This edition is now progressing and further parts are published by the British Standards Institution which has thus given authority to the scheme; it is being revised by a Joint Committee of the Association of Special Libraries and Information Bureaux and the British Society for International Bibliography; it will contain some 70,000 classes and include all the extensions issued to date. Abridgements of the classification are available in many languages, the English representative being the *Classification for Works on Pure and Applied Science in the Science Museum Library*, third edition, 1936.

150. The Universal Decimal Classification has been described as the extended Dewey. The dual control, by

the Educational Foundation in America and the International Federation for Documentation, has led in the past to some divergence in the main numbers. The disadvantage of this is fully recognized. The two editions have now been brought into complete accord as far as the first three figures, and arrangements have been made which should lead eventually to complete agreement. The introduction of auxiliary tables, signs of combination, and analytical sub-divisions with $\cdot 0$, $\cdot 00$, and $-$, as mentioned in paragraph 59, are a special feature of the Universal Classification. These are all intended to permit the sub-division of the main class numbers in the minutest detail for use in classifying information for special purposes, e.g. the correspondence and files of large business houses; for this they have great value. But in so far as they introduce alternative symbols for the same notion, the use of these forms in published bibliographies tends rather to hide than to index information, and should be avoided if possible. For instance, if we add (45), as the topographical sub-division representing Italy, to 582.243, which is the main classification number for *myxogasteres*, giving 582.243(45), we have certainly specified *myxogasteres* in Italy, but such an entry cannot be found from the point of view of Italian botany. In the tables we read "Thus in 58 Botany the sub-division of Place is added only to the section 581.9 and not to its sub-divisions." The correct way of indexing the above subject in a bibliography for publication is 582.243: 581.9(45), which is reversible as 581.9(45): 582.243. It has been necessary to retain the () form of the sub-divisions of place, because certain main numbers have no spare sub-divisions under which the geographical aspect of the subject could be provided for. Generally speaking, however, the main tables, together with the sign of association ":" are now sufficient for library use and for many bibliographical purposes.

151. The main class and division and sub-division numbers of the Dewey scheme are not altered in their

order or meaning in most places, the method being that of further sub-division of numbers already assigned. The invariable three-figure basis of Dewey, by which, for example, Science is written 500 and Mathematics 510, is abandoned, the cypher being removed to a special table. The main classes are represented by pure decimal fractions of unity, from which the initial decimal point is omitted. On the other hand, a point is inserted normally after each group of three figures. This point serves merely to break up the sequence of numbers into convenient sets like the syllables of a word. It has no significance in the order of succession of the numbers. Thus; 622·43 is precisely the same as 62243. Each represents the same decimal fraction as would usually be printed 0·622·43. The main classes are ordered by their first digit and then successively according to the second, third, fourth, etc., digits; thus, 62 follows 618, and precedes 621, 622, etc. In previous editions of the Universal Decimal Classification the geographical numbers under 913 to 919 in Dewey were replaced by a series of topographical numbers (3) to (9) in parentheses. The Dewey numbers 913 to 919 have now been restored, although the (3) to (9) numbers are retained for special use as mentioned above.

The main classes and divisions are:

- 1 Philosophy.
- 11 Metaphysics.
- 2 Religion.
- 3 Sociology.
- 31 Statistics.

and so on. This is an alteration not of meaning but of method of notation only. A good example of the mode is seen in the treatment of Dewey's 900, in which the original:

900	History	9	History.
910	Description	91	Description.

become

920	Biography	simply	92	Biography.
930	Ancient History			
940-99	Modern History			

151.1. *Auxiliary Classes.* In order that the use of the classification may not be limited to librarians and to the preparation of bibliographies for publication, auxiliary tables and signs are provided. These are designed for use in special indexes for further sub-division of the main classes, or to allow a different arrangement. Auxiliary classes are separate sets representing notions such as are commonly employed to specify subjects more minutely. Thus, a main subject, such as History, is commonly sub-divided according to epoch, whilst Geography and Geology are appropriately sub-divided according to locality. Similarly the history of a special subject such as Mathematics is also appropriately sub-divisible according to epoch, and the accounts of actual practice in such processes as mining, generally, or mining of particular deposits, are likewise sub-divisible according to locality. Again, in dealing with documents of various types relating to any one subject, it is sometimes desirable to distinguish both the form of the document, e.g. a book, periodical, drawing, photograph, etc., and the language in which it is written. Finally, it may be desirable, from the administrative standpoint of an industrial undertaking, to bring together certain common characteristics of a series of substances, subjects or processes, which are individually represented by scattered class numbers. For example, a series of substances, which have separate identities in the main classes, but which are conjointly raw materials of a particular industry, may be grouped from that point of view under some sub-division indicating "raw materials" of that industry. Means for this latter type of rearrangement are provided by an auxiliary class of numbers beginning with .00, known as the "point of view" class. There are thus provided in the Universal Decimal Classification five sets of Auxiliary Tables of Common Sub-divisions of Language, Form, Place, Time and Point of

View. Each set consists of a series of decimal numbers preceded and sometimes succeeded by a special distinguishing sign, which serves to separate the auxiliary number from the main class number to which it is attached. The signs are given opposite, together with a typical example of use:

Common Sub-division Signs.

			<i>Example of Use.</i>
Language	=	622=2	An article on mining in English.
Form	(o)	622(o5)	A periodical on mining.
Place	(. . .)	622(42)	Mining in England.
Time	" "	622"17"	Mining in the 18th century.
Point of view	·oo	622·003	Mining from the economic point of view.

It is possible to combine a number of different common sub-divisions with any main class to represent in greater detail a particular subject, thus:

622(o5)=2 A periodical on mining in English.
 622(42)"17" Mining in England in the 18th century.

The signs are referred to as "equals," "brackets o," "brackets," "inverted commas," and "point double o" respectively.

151·2. *Combination of Main Classes.* A subject may not be expressible by means of a single existing class, but may need a sequence or sum of class numbers to express it. Main numbers may be combined in three ways, by means of the signs of association +, / and :, thus:

622+669 Mining and metallurgy.
 624/628 Civil engineering.
 622 : 51 Mathematics adapted to mining technology.

The sign +, "plus," serves to connect two or more class numbers, which, jointly, but independently, make up the subject under consideration—the range of the subject being greater than that of either constituent.

The sign /, "to," serves to express a complete range of subjects covered by all the classes comprised by the two numbers specified and the intervening numbers.

The sign :, "colon," serves to express a subject which represents a sub-division of either of the constituents, each of which is of greater range than the subject under consideration. The colon sign of relation is used only when no existing sub-division is provided in the main classes. A colon combination is reversible; thus:

52 : 622 Mathematics adapted to mining technology.

This permits the information to be indexed according to both the aspects concerned.

152. *Analytical Sub-divisions.* In many of the main classes it is found convenient to provide series of common sub-divisions capable of being added to any member of the class, whether the class number or any of its normal sub-divisions. Such analytical sub-divisions, applicable only in particular classes specified under the notes at the head of each class, are provided by using the signs .o, "point o," and -, "hyphen." Examples will be found in the classes of 621.3. These divisions are suitable only for use in private files, because they hide the information from the point of view they are intended to specify. Thus a group of divisions with the intercalated o is seen at the commencement of 551.51, Mechanics and structure of the atmosphere, where 551.51.052 signifies Troposphere. If it is desired to specify the effect of the troposphere on terrestrial radiation the .052 may be added to the number for terrestrial radiation, forming 551.521.2.052.

152.1. In this example the information about the troposphere is hidden under the number for terrestrial radiation. Therefore, in bibliographies intended for circulation it is preferable to index the information with the aid of the colon, as 551.521.2 : 551.51.052, so that entries may be filed automatically under both aspects of the subject.

152.2. The same objection applies to the use of the hyphen divisions in published bibliographies. Moreover,

main divisions exist corresponding to many of the hyphen numbers. The former should be used in preference.

152.3. *Use of Letters and Names.* Letters of the alphabet and names may be used for the further sub-division of any of the classes in private files. The use of proper names in Botany, Zoology and Biography is adopted as the official method of designation of the minor sub-division.

152.4. *Order of Succession of Compound Numbers.* In the arrangement of the classified items we have to consider (1) the order of succession of combinations of main numbers, and (2) of combinations of main numbers with auxiliary numbers. (1) a + or / combination of two main numbers comes immediately before the first main number of the compound in that order. Then follows the main number. Lastly come all numbers consisting of the main number linked by a : to a second main class. The +, / and : compound numbers are ordered according to the second number of the compound. Thus we get a series such as

624+625, 624+626, 624/628, 624, 624 : 51, 624 : 72.

(2) Combinations involving auxiliary numbers follow the above in the order =, (), " ". Then come the letter combinations A/Z, then the -, .00, and .0 compounds, and, finally the ordinary sub-divisions 1/9. This gives series such as

624=2, 624(05), 624(42), 624"17", 624 London, 624-78, 624.003, 624.014, 624.11, 625.

Compound numbers that involve two or more auxiliary numbers are relatively rare. The order of succession of the auxiliary numbers in forming such actual compounds depends on the significance of the ideas represented.

622(02)"17" represents the concept *A book on mining published in the eighteenth century.*

whereas

- 622"17"(02) means *A book on eighteenth-century mining.*

. The arrangement of the auxiliary class numbers in a

compound involving more than one of them is, therefore, to be fixed to accord with the precise concept to be represented and is not necessarily reversible.

153. *Rules for Classifying by means of the Universal Decimal Classification.* The alphabetical index should be used only as a preliminary guide to the tables. These include many instructions which cannot be summarized in the index. The index is intended primarily for the use of the public in consulting classified indexes. When the same subject can be classified in more than one way, the rule is to use a main classification number if one exists. If more than one main number is possible, choose the lowest. Should there be no main number expressing a special idea, the analytical sub-divisions with .0 take precedence. Next are chosen those with a hyphen, then those with .00. Only when none of these is possible should other auxiliary sub-divisions be employed. The order of choice of sub-divisions is thus:

0/9, .01/.09, -1/-9, .001/.009.

When there is a choice between two numbers of the same kind, i.e. both from the main tables or both from a special sub-division, the numerically lower number should always be chosen. Generally the employment of auxiliary and analytical classes should be restricted to the minimum necessary to specify a work. For administrative purposes it is frequently advantageous to have specifications much more complete than those needed in a catalogue to which the general public have access. Over-elaboration of code numbers confuses an unskilled user of a public catalogue. For general library subject-catalogue purposes the class number selected should be as brief as will allow the book classified to be segregated within a reasonably small group, of say, 50 references. For shelving purposes an even broader classification is desirable, for the reason that intercalation of books is not so simple as intercalation of cards in a catalogue. If the classes used are too minute, spaces must be left on the shelves at very frequent intervals.

to accommodate prospective accessions. On the other hand, libraries of the specialized type, which are concerned mainly with articles in periodicals or with pamphlets relating to very specific subjects, need practically all the detail which is provided in the Universal Decimal Classification. Frequently they need also new subdivisions to keep pace with the progress of knowledge. These are provided on request by the International Commission of the Decimal Classification through the intermediary of the national Sections of the Federation.

154. READINGS.

INSTITUT INTERNATIONAL (*Now* FÉDÉRATION INTERNATIONALE) DE DOCUMENTATION. The original classification as described in the chapter.

— An English translation is in progress. As the text mentions, part of it is now published by the British Standards Institution.

— *Communicationes*. 1934, and Quarterly.

[A periodical issue of the transactions and principal papers of the F.I.D., with descriptions of the work of the various national sections and general information. Contains current revisions and studies of the scheme.]

— Abridged Universal Decimal Classification. 1948 (British Standards Institution).

[Edited by S. C. Bradford. The best work for beginners.]

SCIENCE MUSEUM, SOUTH KENSINGTON. *Classification for Works on Pure and Applied Science in the Science Museum Library*. Ed. 3, 1936. H.M. Stationery Office.

[An English abridgement of the classification, classes 5 and 6 are not so much abridged as the remainder.]

HOPWOOD. *Dewey Expanded*. In *The Library Association Record*, vol. ix, pp. 307-22, 1907.

[An older article, still worth reading. There is a large periodical literature in addition to the *Communicationes*, above, on the subject, for which the indexes to the Library journals may be consulted, particularly articles in the Proceedings of the Association of Special Libraries and Information Bureaux.]

155. QUESTIONS.

(1) Write a brief history of the origin and purpose of the Federation International de Documentation.

(2) Why was the Decimal Classification adapted for the work of its bibliography?

(3) What modifications were made in the *main* Notation?

(4) What new signs were added to the classification? Define them briefly.

(5) Define more fully the use of the "place numbers," especially those not used by Dewey.

(6) Look up what you can of the status of the scheme and write an account of its use and influence in the intellectual world.

CHAPTER XIV

THE SUBJECT CLASSIFICATION

157. Among the many services rendered to librarianship by James Duff Brown were his three schemes of classification. The earliest of these, the Quinn-Brown system, devised as its name implies with the collaboration of John Henry Quinn, was for smaller libraries only; the second, the *Adjustable* scheme, published in his *Manual of Library Classification*, was one of his many contributions to open-access service. Both proved too inflexible for rapidly-growing libraries; and after years of labour he put forward a scheme which has been adopted in more than a score of British libraries, the *Subject Classification: with Tables, Indexes, etc., for the Sub-division of Subjects*, by James Duff Brown, 1906. The third edition, 1939, has been conservatively revised by James Douglas Stewart who, as Brown's nephew and assistant, took an important share in the original work of compilation. It embodies, however, the results of nearly thirty years of application to the several quite sizeable libraries which work the system. That experience has justified the classification, which is more used in this country than any other except Dewey,

and the system is perhaps the best achievement in England of the classificatory art for library use. It is simple, expansible and complete, and its outline is the most attractive of all the classifications that exist. It has been treated so fully in English library periodicals by Messrs. Savage, Coutts and Lyster, as well as by the present writer in his *Manual of Classification*, that it is unnecessary here to give more than a brief account of its outstanding features. An attractive theory lay at the basis of the system. Brown held, in general, that every form of knowledge can be traced to a root class or principle from which it develops. His primary principles were Matter and Force, Life, Mind, and Record, upon which the main divisions are based, are evidently meant to represent the order of the appearance of things in time. It can be seen that this is a form of evolutionary order, although perhaps not a scientifically defensible one, and it will be well to treat it as a sort of theoretical developmental order.

158. The main classes and basic notation are as follows:

A	Generalia.
<i>Matter and Force—</i>	
B-D	Physical Science.
<i>Life—</i>	
E-F	Biological Science.
G-H	Ethnology, Medicine.
I	Economic Biology, Domestic Arts.
<i>Mind—</i>	
J-K	Philosophy and Religion.
L	Social and Political Science.
<i>Record—</i>	
M	Language and Literature.
N	Literary Forms, Fiction, Poetry.
O-W	History and Geography.
X	Biography.

The following are a specimen class, and a division with its sub-divisions:

A	GENERALIA.	A500	GEOMETRY.
A0	Generalia.	A501	Euclidian Geometry.
A1	Education.	A502	Modern Geometry (non-Euclidian).
A3	Logic.	A503	Fourth Dimension.
A4	Mathematics.	A504	Analytical Geometry.
A5	Geometry.	A505	Plane Geometry.
A6	Graphic and Plastic Arts.	A506	Solid (Volumetric) Geom.
A9	General Science.	A507	Curvilinear Geometry.
		A508	Quadrature.
		A509	Conic Sections.
		A510	Descriptive Geometry.
		A511	Projection.
		A512	Perspective, etc., etc.

159. The usual form class, Generalia, opens the scheme, but it will be seen that it differs from the equivalent class in other schemes in that it includes Logic, Mathematics, and the Plastic Arts, on the very debatable ground that they are pervasive of all other classes of knowledge. In the remaining classes the order is based on the belief already expressed that every art springs from some definite source, or that every effect has a discernible cause, and the arrangement is from source to application, from cause to effect. Thus, Sound leads up to Music, Light to Optics, and so on. This results in some curious anomalies, as discussed in chapter VII of the *Manual of Classification*. Certain divisions are worked out with great minuteness, especially Music, and the divisions of History and Geography.

The notation is of the mixed variety, consisting of a single letter, to mark, in general, but not always, the main classes. Division is obtained by figures, 000-999 being (approximately) allocated to each division. These figures are of ordinary arithmetical interpretation, and vacancies are left for new topics; but if desirable they may be used decimally. This alternative is a great advantage. The Form Classes are to be found in Generalia and Record.

160. The form divisions are obtained by a process peculiar to the scheme called the categorical tables. These are of numbers, with an invariable meaning, which are added, after a point, to any part of the notation. There are 975 of these categorical numbers as compared with the ten form divisions of the Decimal Classification. A specimen may be given :

- 0 Generalia. *
- 1 Bibliography.
- 2 Encyclopædias, Dictionaries.
- 3 Text-books.
- 4 Philosophy and Theories.
- 6 Societies.
- 10 History.
- 33 Geography.
- 39 Gazetteers.
- 50 Epitaphs.
- 60 Programmes, Playbills, etc.
- 61 Recipes.
- 63 Patents.
- 67 Lectures, Commentaries.

It will be seen from these examples that many of the terms are the names of *subjects* rather than of "common sub-divisions" as they are generally understood; and these categorical numbers have a function different from and larger than the common sub-divisions of other schemes. They are an "economy expedient," to save relative index expansion and what Brown thought to be inflated main tables. Thus, when any sub-topic or treatment of a topic appeared likely to occur under more than one general heading, he gave that sub-topic or treatment a number and put it into this table. It is to be remembered that the scheme endeavours to give only one place in the schedules for each subject. Thus Recipes has the number A010 in the main schedules, but Recipes could occur at Cookery, Painting, Technology, and other places. Instead of repeating at each, Brown used an invariable number from the categorical table to show this

sub-topic. In this way he reduced his printing very greatly.

161. The Index, largely as a result of the categorical tables, is a specific one, giving only one place for each topic. This has already been discussed at sufficient length in paragraph 50. This scheme more than any other is dependent upon all its apparatus and auxiliaries. It becomes an organic whole only when schedules, categorical tables and index are regarded and used together. The printed scheme is preceded by a good introduction, which, although defective on theoretical matters, a point the student is now in a position to judge, is valuable as a practical, experienced manual of shelf-placing, and contains many manipulations of notations, some of which have almost the value of annotation.

162. READING.

BROWN. *Subject Classification*.

(The introduction is most useful.)

— *Library Classification*, pp. 79-88.

BLISS. *Organization of Knowledge in Libraries*, Chapter XIII.

RICHARDSON. *Classification*, pp. 140-2.

SAYERS. *Manual of Classification*, Chapter XIV.

163. QUESTIONS.

(1) Give the outline of the Subject Classification and show its evolutionary character.

(2) Show how every applied science is regarded as being developed from a pure science.

(3) Describe the notation of the scheme, with examples.

(4) What is Brown's method of geographical division?

(5) What is the purpose of the Categorical Tables?

(6) What is a specific index as exemplified in this scheme?

CHAPTER XV

THE BIBLIOGRAPHIC CLASSIFICATION OF

HENRY EVELYN BLISS

"He is, of course, a philosopher where Melvil Dewey is only a logician, but they accept the same axioms and arrive at conclusions which are the same in principle, however much their details may vary."—*Pierce Butler*.

164. The system of Henry Evelyn Bliss has secured in a few years a reputation justified by its intrinsic merits and the eminence its author has earned in the work of classification. Bliss was for forty years associate-librarian of the College of New York and his life has been dedicated to literature and poetry, but librarians have seen in him a philosopher who has given years to the patient accumulation of materials for a history of the attempts of men to organize the world of thought and things. Fortunately, for some years before his retirement from active librarianship, he was permitted such leisure from ordinary library work that he has been enabled to set forth with an equipment possessed by no other librarian of to-day the books on classification which have made his name amongst librarians. In the first of these works, *The Organization of Knowledge and the System of the Sciences*, 1929, he produced, in the words of Pierce Butler, "the most thorough discussion of the philosophical problems involved by our standard theories of library classification that has yet been written."¹ In 1933 he followed this with a volume directed to actual library classification, *The Organization of Knowledge in Libraries and the Subject Approach to Books*². In this he enunciates an attractive theory, assembles a set of thirty "Principles," deals in turn with notation and the making of schedules, enunciates the art of classifying books and outlines a code for it, considers subject-

¹ *Library Quarterly*, vol. i, pp. 92-4, 1931.

² Second, revised, ed., 1939.

cataloguing, and, after dealing generally with "bibliographic classification," proceeds to a trenchant criticism of "historic classifications for libraries," in which in turn the Dewey, Cutter, Library of Congress, Brown, and Hartwig classifications, and that of the International Catalogue of Scientific Literature are shown in their virtues and defects as the critic sees them and are all pronounced inadequate. This clears the approach to the author's own scheme which, in extended outline, appeared in *A System of Bibliographic Classification*, 1935, and in a second, amended, edition in 1936. This, with its important introduction, index, etc., is an excellent work from which the student can gain a comprehensive view of the qualities which are developed in the full scheme. That reached us in *A Bibliographic Classification*, the first volume of which appeared in 1940, the second in 1947, and the third and the fourth in 1953. In the 1953 edition the first two volumes are brought into one volume, the whole work therefore consists of four volumes in three. The last of the set is devoted to the General Index and, for those who bought volumes one and two in their original separate form, Bliss has issued a pamphlet containing 323 emendations.

164.1. These books are not easy for the beginner, but an attempt to explain Bliss's theory may be a useful preliminary to a short account of the classification itself. One of the difficulties is that he has created his own terminology, as being more precise than that hitherto used in this and other books. For example, he prefers the unusual word "maximal" to "maximum," and we have already quoted his "collocative." His expression is so concentrated that he can present many different qualities in a string of adjectives, each of which must be considered before his whole meaning is reached. Let it be added that it will repay us to overcome these difficulties.

164.2. His fundamental principle is that the arrangement of a class, and of classes, in a system as a whole, will be most useful if it conforms "to the organization

of knowledge established in the *scientific and educational consensus*." In simpler, but not necessarily better, words, classes and the schedules composed of them should arrange knowledge in the order which the expert workers in them have found to be most satisfactory. Such a classification must, therefore, be a knowledge classification as we understand the term. His four main divisions are Philosophy, Science, History, Technologies and the Arts. These he divides into appropriate classes, placing side by side (collocating) those classes which are most like in subject matter or interest. The point made about this is that these classes are not divisions of one another as are the successive steps of the Tree of Porphyry, but are classes arranged according to their closeness of relationship in subject interest, and are often of equal rank. Each of these classes is divided on the similar principle of bringing the most like sub-classes side by side, so that there is both co-ordination and subordination of subject matter. On the face of it the method does not differ from that involved in the expression "arrangement according to degrees of likeness and separation according to degrees of unlikeness" used in all well-designed schemes, but Bliss is more consistent in his practice. The Concise Synopsis (Table I) of his System is so interesting that it is set out on page 154.

This deserves study, for not only are the vertical relationships of subjects brought out; their horizontal ones are also indicated in an interesting manner. For example, the study of Nature from the philosophic standpoint leads downward to Cosmology and its parts, and Cosmology leads horizontally through Science to Astronomy, which develops Geology downwards; but Geology leads horizontally through History to Historical Geology, and this, again, crossing Technology horizontally, leads to Economic Geology. The method is displayed, it will be seen, in many divisions and classes. A frank acceptance of the overlapping of subjects is fundamental to this method, for when these subjects are written as in

an ordinary schedule, Cosmology, Astronomy, Geology, Economic and Historical Geology are widely separated.

164.3. The vertical outline is as follows:

MAIN CLASSES.

- A Philosophy, General Science, Logic and Mathematics.
Natural Sciences, Physical Sciences, in general.
Metrology, and Statistics.
- B Physics,
including applied physics and special physical
technology.
- C Chemistry,
including chemical technology and industries, in-
cluding also Mineralogy.
- D Astronomy, Geology, Geography, Natural History, and
Microscopy.
Geography here includes only the general and the physical.
- E Biology,
Paleontology and Biogeography are included.
- F Botany,
including Bacteriology.
- G Zoology.
- H Anthropology.
General, and Physical, including the Medical sciences,
Hygiene, Physical Education, Recreation, etc.
- I Psychology.
Alternative is AI.
- J Education.
- K Sociology, Ethnology, and Anthropogeography.
Alternative is P, if Religion, etc., be preferred in this place.
- L History, General, and Ancillary studies, and Ancient
History.
Geography, Historical. History, Social-political,
Archæology, etc.
- M Europe.
Geography and history, social-political and national.
- N America.
Geography and history, social-political and national.
- O Australia, Polynesia, East Indies, Asia, Africa, etc.
Geography, ethnography and history.
- P Religion, Theology, and Ethics.
Alternative is K, or AJ, or Z.

[Continued on p. 157.]

CONCISE SYNOPSIS.

THE BLISS SYSTEM OF BIBLIOGRAPHIC CLASSIFICATION.

The arrangement shows the vertical and horizontal relations of subjects.

PHILOSOPHY.	SCIENCE.	HISTORY.	TECHNOLOGIES AND ARTS.
Principles.	Science in general.	History of Philosophy and Science.	
Metaphysics.	Abstract Sciences and general methods. Logic. Mathematics.		
Philos. of Nature.	Natural Sciences. Physical Sciences. Physics. Chemistry. Special Natural Sciences and descriptive Natural History. Astronomy. Geology. Geography. Meteorology.		Applied Science. Technology; Physical; Engineering; Chemical.
Cosmology.		Historical Geology.	Economic Geology. Economic Geography.
Philos. of Life.	Biological Sciences. Biology. Botany. Zoology.		
Philos. of Human Life.	Anthropological Sciences. Anthropology. Physical.	History of Mankind and of Human Life. Archæology.	Humanities and Humanitarian Studies. Medical Sciences and Hygiene.
Mental Philos.	Psychological Sciences. Psychology. General and Comparative. Individual Psychology. Abnormal Psychology. Social Psychology.		Applied Psychology.
Social Philos.	Social Sciences. Sociology. Ethnology. Religion.	Social-political History. History of Religions Mythology.	Psychiatry. Education.
Theology.			Applied Social Science. Church-work.
Ethics. Political Philos. Philos. of Law. Philos. of Econ.	Morals. Political Science. Jurisprudence. Economics.	History of Law. Economic History.	Applied Ethics. Government. Practice of Law. Economics. Industries. Business.
Æsthetics.		History of Arts:	Arts: Technic of Arts: Industrial; Fine Arts, etc. Music.
	Philology. Linguistics and Languages; Literature.		Rhetoric, Oratory, etc. Drama and Theatre.

- Q Applied Social Science and Ethics.
- R Political Science and Philosophy.
- S Jurisprudence and Law.
- T Economics.
- U Arts: Useful and Industrial Arts, and Technology.
(Exceptions are noted above under Physics and Chemistry.)
- V Fine Arts and Arts of Expression, Recreation, and Pastime.
- W Philology: Linguistics in general, and Languages other than Indo-European.
- X Indo-European Philology: Languages and Literatures, except English.
- Y English Language and Literature, Literature in general. Rhetoric and Oral expression, including Dramatics, Theatre, and Journalism.
- Z Bibliology, Bibliography, and Libraries.

164.4. The notation is primarily alphabetical and divisible alphabetically and so carefully has it been accommodated to the terms of the scheme that one of the shortest notations has resulted.

164.5. *Systematic Schedules*. In Bliss the functions of the common sub-divisions and methods of combination and discrimination used in other schemes are performed in a manner unique in its kind. A considerable apparatus of what are called "Systematic Schedules" which lead to very fine discrimination of the forms, relations and in some cases recurring sub-divisions of subjects are provided as an essential part of its structure. They are therefore "not merely form divisions," nor are they all "common," because many of the tables, indeed over thirty, of these "auxiliary schedules" are applicable under individual subjects or classes, and are printed near to the subjects they can divide. These special schedules are set out in Table IV, in volume 3 in front of class L. Obviously I am unable to set these out here, but their purpose, like that of Brown's Categorical Tables, is to save repetition of similar sub-divisions in the main tables. Altogether, there

are 45 such general or special schedules and they give great extension and enormous sub-division to the scheme.

Schedule I may be quoted. It is of the "Anterior Numerical Classes" and has in part the effect of ordinary, common sub-divisions and in part are a method of indicating departmental placing of books in a library:

1. Reading Room Collections.
2. Bibliography.
3. Select or Special Collections.
4. Departmental or Special Collections.
5. Documents, or Archives, of Governments, Institutions, etc.
6. Periodicals.
7. Miscellanea.
8. Collections of Historic, Local or Institutional Interest.
9. Antiquated books, or Historic collections.

These can be used before or after any subject number, according to the chosen order; i.e., we may arrange our collections by subject, or form or aspect, as desired. Examples are:

- | | |
|-----------|--|
| 1 | Reference Room Collections. |
| 12 | Bibliography in Reference Room. |
| 15 | Documents in Reference Room. |
| or | |
| 5 | Documents. |
| 51 | Documents in Reference Room. |
| or again. | |
| Q | Applied Social and Ethical Science. |
| QA | Social Welfare. |
| QA6 | Periodicals on Social Welfare. |
| and | |
| 6 | Periodicals. |
| 6Q | Periodicals of Applied Social Science and Ethics. |
| 6Q1 | Periodicals of <u>Applied Social Science and Ethics</u>
in the Reference Library. |

164.6. *Geographical sub-divisions* are obtained by the addition to the class-mark of a lower case letter (or letters), thus:

a	America.
aa	North America.
ab	British America.
abn	Newfoundland.
b	United States.
ba	North-Eastern United States.
bb	New England.
bbc	Massachusetts.
	etc.

There are other tables, which have been compiled with great ingenuity, and flexibility, and have most convenient modes of application.

164.7. *Linguistic sub-division* is made by the addition of a capital letter, from a table resembling Schedule II but distinct from it, to the subject number. In most cases, but not in those already provided with letters to distinguish countries, this letter is preceded by 4 from Schedule I. Another table gives common numbers for the sub-division of the philology of any language.

164.8. Alternative methods of classifying material are a feature peculiar, in fact essential, to the purpose of the scheme. Social conditions and subject interest may make it desirable to place some subjects in a main class other than that in which they usually occur. A list of some of these subjects is given in Table V; for example, Aviation may be placed at Physics or under the Arts next to Navigation; Social Psychology and Psychological Sociology may be kept distinct or combined; Photography may be placed under Physics or under Chemistry or with the Arts. It should be noted carefully that this is not cross-classification which is the result of the cross-division of subjects, as described in paragraph 12. It merely allows the most useful placing of a subject for the purpose of the user; it does *not* mean that Aviation can be placed under Physics *and* under the Arts, a practice which would make confusion of classification. The use of alternative placings must be consistent and calls for consistent indexing.

The *General Index* is of the relative type and has 45,000

entries. Its use, as has perhaps been implied in the previous sentences can be greatly enlarged if it is used in conjunction with the Systematic Schedules.

164.9. The student, at this stage, will be well aware that the class by class study of a great classification cannot be undertaken here; of that I am rather painfully conscious; all I have endeavoured to do is to give some indication of the vast canvas of the newest of the enumerative schemes (Bliss protests against the adjective as incorrect!). Some critics have found the imitation typescript in which the schedules are reproduced rather difficult to use. A little patience only is required, however, and the text of the introductions and the index are in printer's type. Librarians who apply it will necessarily study it at first hand and I hope my readers will do so, even if they have no such opportunity or intention. It has already been applied in several British libraries and will serve more as its virtues become more widely known.

164.91. READINGS.

BLISS, H. E. *A System of Bibliographic Classification*, 1935. Ed. 2, 1936. H. W. Wilson Co.

— *The Bibliographic Classification*, 4 vols. in 3. 1935. Same publisher.

SAYERS. *Manual of Classification*.

Chapter XVIII by L. A. Burgess is a sound study. Burgess has also contributed a useful account to the *Journal of Documentation*.

PHILLIPS. *Primer of Classification*.

STOTT, C. A. *A Guide for School Libraries*, 1930. Oxford Univ. Press.

Articles that have interested the author have been written on classing by Bliss and on a comparison of the scheme with the Colon Classification by J. MILLS (*Library Association Record*, 1950, pp. 370-2 and 1951, pp. 146-53).

The indexes of the *Library Journal* and the *Library Quarterly* should be consulted for important articles by C. J. Farrell, Grace O. Kelley, J. M. Hanson, all 1934, and A. J. Trolter, 1936, etc. A readable account of the life and purpose of Bliss,

with a small portrait, is in *Current Bibliography*, Sept. 1953, pp. 26-8 (H. W. Wilson Co.).

164.92. QUESTIONS.

- (1) What does Bliss mean by the phrase—"Subordination of the special to the general, gradation by speciality and collocation of the closely related subjects for maximal efficiency"?
- (2) What account can you give of the Bliss notation?
- (3) Comment on the uses of Systematic Schedules.
- (4) What is meant by "arrangement in accordance with the educational and scientific consensus"?

CHAPTER XVI

THE COLON CLASSIFICATION¹

165. The Colon Classification, (1933; second edition 1939) devised by Dr. S. R. Ranganathan of Delhi University, is interesting because it is based on theory expounded in this book, and is probably the first produced as a result of the teaching of classification as a subject in librarianship. Dr. Ranganathan studied classification under Mr. Berwick Sayers in 1924 and, as a result of his studies, became dissatisfied with existing schemes, none of which conformed completely to the canons laid down by his teacher. On his return, he applied to the Madras University Library the tentative scheme of classification, from which later grew the Colon Classification.

This scheme allocates its main classes thus:—

Generalia.

A Science (General).	J Agriculture.	T Education.
B Mathematics.	K Zoology.	U Geography.
C Physics.	L Medicine.	V History.
D Engineering.	M Useful Arts.	W Politics.
E Chemistry.	△ Mysticism.	X Economics.
F Technology.	N Fine Arts.	Y Miscellaneous
G Natural Science	O Literature.	Social
(General) and	P Philology.	Sciences, inc.
Biology.	Q Religion.	Sociology.

¹ By Bernard I. Palmer.

H Geology.
I Botany

R Philosophy. Z Law.
S Psychology.

165.2. At the head of the schedules for each of these classes is given a statement of the characteristics to be used as the basis of division, and the order in which they are to be used. That at the head of the main class Religion reads:—Q(R):(P), which means “Divide Q (Religion) first on the basis of the R (religion involved) characteristic, and then on the basis of the P (problem involved) characteristic.” Below we find two lists of divisions, one based on each of these characteristics. Here are samples:—

Divisions based on R

- 1 Hinduism.
- 4 Buddhism.
- 5 Judaism.
- 6 Christianity.

Divisions based on P

- 1 Mythology.
- 2 Scripture.
- 3 Theology.
- 5 Preaching, etc.

If, therefore, we have a book on Christian Theology, we combine two divisions according to the formula at the head of the class, and get Q6:3.

165.3. Now each of the numbers given above may be divided decimally to meet the needs arising from the subdividing of the divisions listed; but the colon always marks the point where the number formed from the application of one characteristic ends, and that from the next begins. Each part of the subject may thus be developed as fully as is desirable, without prejudicing the development of the next. Religion lists 142 divisions under (R) and 111 under (P). In effect this means that the Religion schedule provides potentially 15,762 places (i.e. 142×111)

165.4. The scheme has all the auxiliary schedules that are a feature of modern schemes. There are the common subdivisions, shown by lower-case letters, which, like Bliss's, give an anterior position: geographical divisions,

shown by a combination of a small v and figures drawn from a geographical table provided for universal application in the scheme: time numbers drawn from a chronological table, shown by a capital letter and figures; and there is also a common list of languages.

165.5. The particular form of schedule provided, together with the eight devices for number building, gives the Colon Classification great flexibility and hospitality. This, with its strict discipline and explicit methodology, suggests that it is likely to be of considerable value when it is better known, particularly to the librarian with a special collection on a minute area of knowledge which requires a special classification.

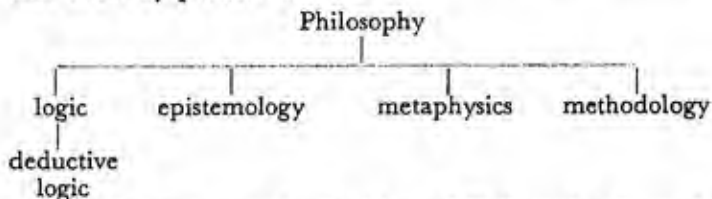
165.6. While most students are aware that Dr. Ranganathan has produced the Colon Classification, very few realize that the understanding of principles which has sprung from this scheme is probably of far greater importance than the scheme itself. Dr. Ranganathan claims to have succeeded in analysing the infinite variety of human knowledge in terms of five fundamental concepts: Matter, Space, Energy, Time and Personality. Some of these, he says, are present in some form in all subjects. This is not all, however: he was the first to attempt (and here he undoubtedly succeeded) to separate the characteristics used for division, thus allowing the division of a class to proceed along two or more lines of division at one and the same time.

165.7. It must be made clear that the Colon Classification observes all the canons of Mr. Sayers, is based on a classification of knowledge, and observes the rules of logic in its processes of division. In spite of its unorthodox appearance, it is precisely because of its observation of the canons of classification and of the theory as laid down in this Introduction that it takes on its somewhat unusual character. Dr. Ranganathan produced his scheme as a direct result of his studies under Mr. Sayers and of the works of Bliss. His greatest contribution to our subject

lies in the break from enumerative schedules (in which every subdivision is set out and numbered), and in substituting for them schedules of elements, drawn from the five fundamental concepts, which enable the building up of a far greater number of specific subjects than could ever be enumerated within the covers of one volume. Its success in achieving order, comprehension, self-perpetuation and universal application proves Sayers' teaching to be on the right lines, despite the critics belonging to the empirical school. Additionally, great success in unlooked for directions proves the fundamental soundness of the underlying theory.

165.8. Let us examine the rules of division and see how far they are observed in Colon.

165.81. *1st rule.*—The first rule of division reads "division must proceed from terms of great extension and small intension to terms of great intension and small extension" and makes it appear that division proceeds along one direction only: that, for example, the division of the class Philosophy proceeds only along the direction Philosophy—Logic—Deductive Logic, each step in the process being of less extension than the one before it. In fact, the division of Philosophy must proceed at the same time along the direction Philosophy—Logic—Epistemology—Metaphysics—Methodology, each step in *this* process being of *equal* extension. We may represent this two-way process thus:—



We may say that the division of Philosophy through Logic to Deductive Logic is division "in chain", since we can imagine the lower two subjects hanging like links in

the chain from the parent link Philosophy. We may say that the division of Philosophy into co-equal sub-groups Logic—Epistemology—Metaphysics—Methodology is division in array, since we can imagine these co-equal sub-groups standing as equals in a row.

In using the Tree of Porphyry as an example of the process of division, division in array tends to be overlooked, since the application of a difference gives but two species, those possessing the quality and those not possessing it. This is equivalent to dividing Philosophy into "Logic" and "Not-Logic." Such a division of a genus into a positive and negative species is inadequate in bibliographic classification since we need to know the positive qualities of the negative species.

Instead of a difference giving two species, positive and negative, we need a principle of division which will throw off at one and the same time all the co-equal mutually exclusive sub-groups contained in the genus. Every scheme of book classification is more or less successful in this; but it has waited for Ranganathan to relate these rules of division to the pattern of the five fundamental concepts, to state explicitly in his schedules the rules of division used at each step and to provide in the notation for the independent expansion of the sub-groups resulting from the application of each rule of division.

Look at Dewey class 621 Mechanical Engineering: it sub-divides into 621.1 Steam Engineering, 621.2 Hydraulic Engineering, 621.3 Electrical Engineering and 621.4 Gas Engineering. What is the characteristic of division? It is only by conscious analysis that we discover that the characteristic of division is "type of motive power." If only the decimal classification had stated this characteristic and provided for its full application, no matter how many new types of motive power might appear in the future, its hospitality would have been greatly increased. The decimal places resulting from the sub-division of 621 have all been filled up with divisions arising from another

characteristic once that of "type of motive power" was exhausted, so that the new motive power "Atomic Energy" does not find its proper place under Engineering in the form of "Atomic Engineering".

165.82. *2nd rule*.—Unless the existence of a division in array as well as in chain is realized, the second rule of division loses most of its meaning. With division in chain, modulation means the progressive decrease in extension without omission of any steps. Modulation in array means the arrangement of co-ordinate subjects in the most useful order: that is to say, in the order which expresses the greatest degree of likeness between neighbours in an array of co-equal subjects. What is the most useful order? It is obviously a relative matter depending on the purpose of the scheme, and Ranganathan offers us a choice of possible orders: there are quantitative order, for use where the characteristic admits of quantitative measurement; evolutionary order; order of increasing complexity; chronological order; spatial order; canonical order (conventional, or that reflecting traditional practice); or, if all else fails, categorical order where the most frequently used subject takes precedence, the second most frequently used follows on, and so forth. Having regard to the needs of the subject, the most useful of these orders is chosen for arranging the group of species obtained by the isolation of the difference.

165.83. *3rd rule*.—In common with all successful schemes, Colon observes the third rule of division because failure to do so would be a negation of classification.

165.84. *4th rule*.—To state, as the fourth rule does, that "characteristics must be consistent" implies two things.

(i) that the characteristic must be used with a consistent meaning, which is obvious, and

(ii) that it should be applied consistently. That is to say, it is necessary to exhaust one characteristic before the introduction of another. This is seldom, if ever, done in those schemes which set out to enumerate all the subjects,

past and present, which they contain. The growth of knowledge forces such enumerative schemes to add further subjects, and as none of their notations provides for complete hospitality in both chain and array, they cannot do this, except in those very rare classes where only one characteristic of division is required. Nobody can possibly enumerate all the divisions that result from the application of a characteristic even up to the moment of laying down his pen, let alone future developments. If, therefore, the notation of a scheme does not provide for the independent development of each characteristic, the scheme carries its own seeds of decay.

165.85. *5th rule.*—The mutual exclusiveness of terms, demanded by the fifth rule of division, is achieved by relating the terms in a scheme to their context. Since each class is divided by stated characteristics which must be applied in a given order, it follows that the divisions produced at each stage must of necessity reflect the application of only one characteristic, and this prevents overlapping in the meanings of terms.

e.g. Education is divided first by the Educand, and then by the Problem involved. This gives us one set of divisions relating to the classes of people subject to education, and another set relating to teaching methods, school organization, etc. We do not get (as in Dewey) a set of co-equal divisions that refer sometimes to one and sometimes to another, and which offer alternative placings according to the viewpoint of the classifier.

165.86. *6th rule.*—The sixth, and last, rule is impossible as a finite end; but is made possible by provision for expansion. All schemes make some provision of this kind; but provision for limitless expansion in both chain and array is a feature of Colon alone. Dr. Ranganathan also gives us clues as to which numbers to use for different ideas when expanding a heading to meet the needs of growing knowledge. No other scheme does this.

165.9. When we turn from general ideas on classification to bibliographic classification proper, we find that

Colon takes the nature of books very thoroughly into account in its construction. It recognizes at once that the subject of a book is a compound of several things. It is not only a piece of knowledge; but also an attitude to that piece of knowledge. Medicine, for instance, may be regarded from the viewpoint of the organ concerned, or from that of the problem involved, or from a combination of both: further, like other modern schemes, Colon recognizes that the form of presentation of the subject demands attention.

What we call the subject of a book consists of one or more layers of ideas intricately folded over each other, or, as Ranganathan says, laminated. The task of a classification is to peel off the successive layers, and reveal the parts. It does this through the discipline of facet-analysis, or relation of parts to the successive characteristics used in arranging the divisions of a complex subject.

Again, some subjects not only reflect a succession of closely integrated characteristics, but have affinities with other quite different subjects: e.g. the "statistics of child-birth" deals with subject "childbirth" by using the tool "statistics"; "the effect of war on population" deals with the subject "population" as influenced by "war," and "mathematics for the toolmaker" deals with the subject "mathematics" from the viewpoint of the "toolmaker". This kind of complexity in a subject is different from that of lamination, and is called by Ranganathan "loose assembly", because it ties together two subjects drawn from different branches of knowledge.

There is a third kind of complexity in the subjects in books, that caused by the form in which they are presented. Form subdivisions Ranganathan calls "dressing", since they are not an inherent part of the subject, but something put on afterwards, or, to use a different analogy, the garnishing with which the dish is served. Having isolated three potential factors in a subject, Colon proceeds to the provision of a distinct method for the

presentation of each. This was not necessarily done consciously at first, but each was produced intuitively in order to satisfy the demands of the theory Ranganathan had learnt, and the intuitive act was later rationalized. This is one of the many ways in which his scheme has unconsciously revealed the fundamental soundness of the theory he had inbibed.

Ranganathan first diverges in opinion from Sayers, in placing a greater emphasis on the importance of notation. Notation has always been regarded as "something added" to classification: an apparatus to secure its easier manipulation. Ranganathan claims it is more than this it is a vital piece of apparatus. Indeed, he goes so far as to claim that bibliographic classification is an artificial language of ordinal numbers into the terms of which the classer translates the subject of the book. If this claim is to be upheld, a classification scheme must provide a notation which is flexible enough to accommodate all past, present and possible subjects and to do so only on demand.

The notation of the Colon Classification does this. Under each main class it sets out the characteristics used to divide it, in the order in which they are to be used. It lists the most commonly encountered divisions under each, and leaves the combination of the numbers reflecting the various laminations to the classer, who must, be it noted, conform to the rules laid down—or the "grammar of the classificatory language." A subject divisible by three successive characteristics may have only ten divisions listed under each; but they may be assembled in 1,000 different ways. This is why the Colon schedules, occupying only 180 pages, offer as many placings as the Decimal Classification schedules, which occupy more than 1,000.

165.91. The second point on which Ranganathan differs from Sayers is in the matter of the importance of mnemonics. Sayers regards these as a useful and ingenious auxiliary which should not, however, determine the value of a scheme. Ranganathan sees them as the life's-blood of the growing scheme: *they make autonomy for*

the classer a practical proposition. For this reason he has resorted to mnemonic schedules wherever possible: for common subdivisions, for geographical and chronological division, and for subdivision of similar groups in different classes (e.g. Physiology of animals draws its Organ divisions from the Organ divisions of Medicine). Hence a classer confronted with a new subject has an endless succession of what the law might call "precedents" to guide him.

165.92. In addition to this, Ranganathan has attempted to lay bare the principles which have led him to choose *this* number rather than *that* to express an idea. He lists the associations his mind has developed for each numeral, and calls the resultant lists his "unscheduled mnemonics." The idea behind all this codifying is to transfer as much autonomy in number building to the classer as possible, even in the newest subjects, so that reference to the higher authority of the author of the scheme is reduced to a minimum. In fact, the men he has trained have gone to the four corners of India and made decisions in classing; and the agreement arrived at in making new numbers has been of the order of 90 per cent.

165.93. But Ranganathan's work has gone to even deeper levels. Examination of all existing schemes of classification has convinced him that whatever their surface manifestations, the characteristics chosen as the basis of division can be related to five categories fundamental to all human thought. "Any analysis," he says, "ultimately strikes root in them." These are Space, Time, Matter, Energy and Personality. With the discipline and experience which facilitate the recognition of these, and a thorough understanding of the mechanical means Colon places at his disposal, a classifier can produce a scheme to meet the needs of any subject, no matter how minute, and can relate this scheme to the main schedules of the Colon Classification. The writer knows that the technique does achieve this, for he has seen two schedules produced

for widely varying subjects by an English librarian who had studied Colon technique closely.

[I would add to Mr. Palmer's useful study, that the *depth classification* to which he refers, and the schedules just mentioned, appear to be more applicable to documentation classing than to the shelf or other placing of books. It should always be appreciated that highly specialized and minute analysis, arranging and recording of subjects, required for instance in the files of an industrial library, must be complex for shelves. One of the schedules mentioned was on "packaging," which would scarcely require more than a single class entry in a general scheme. It was constructed on Ranganathan principles, not by the Colon Classification. It is possible that the principles are much more universally valuable than that scheme itself. This, however, still remains to be tested in a large general library, accessible as are British and American public libraries.]

165.94. READINGS.

Read in the following order:

RANGANATHAN. *Elements of Classification*. 1944.

— *Library Classification: fundamentals and procedure*. 1944.

— *Prolegomena to Library Classification*. 1937.

— *Classification and International Documentation*. 1947.

— *Classification and Communication*. 1951.

— *The Philosophy of Classification*. 1951.

PALMER AND WELLS. *The Fundamentals of Library Classification*. 1951. Allen and Unwin.

There is more recent literature on Colon than on any scheme in present use. The journal of the Indian Library Association, *Abgila*, has consisted very largely in recent years of classification studies, many of them by Ranganathan.

165.95. QUESTIONS.

(1) In what way is the symbol : (colon) essential to the Colon scheme?

(2) What are the purposes of the five fundamental concepts?

- (3) How are subjects collocated in array?
- (4) Show, with an example, what is meant by classification in chain.
- (5) What is hospitality?
- (6) Define phase, facet and focus.

CHAPTER XVII

SPECIAL CLASSIFICATION SCHEMES

166. Our concern in this book has mainly been the classification devoted to the arrangement of a general library. There are, as was indicated as far back as paragraph 25, schemes devoted to a special subject or group of subjects. The librarian has been familiar with these for a half-century or more and this is the side of our subject which occupies most of the space in several library journals. Here it is possible only to show what the problem is and to suggest some of the many ways in which it is being studied and some of the solutions proposed.

A special library may be that of a research, or of a manufacturing or works organization, a particular profession, a special government department. It may be a separate entity, or it may, on the other hand, be a special collection incorporated in a great general library; indeed, most great libraries are a series of special libraries unified. The sole justification of such libraries is that they focus all the literary and collateral material on a special subject—engineering, electronics, explosives, paint, dairying, photography, medicine, surgery, plastics, rubber, music, and, indeed, anything about which men think and work. In them are collected this material as exhaustively as possible; they class and index it so that everything available about it can be arranged precisely on shelves or in files.

The material must be current as well as exhaustive, and range from the news cutting to the treatise, the sketch plan to microfilm and other record reproductions. It must be

classed and filed in such manner that everything on a given subject, however minute, can be produced instantly. That is the ideal. It therefore calls for minute, relational classification in some cases, especially in subjects which are developing almost daily. The sub-divisional power of the U.D.C. has proved efficient for many subjects as it is believed that of Bliss can be. There is, however, the occasional great length of notation involved in the use of general schemes for special libraries; for example, in the D.C. 659.12, "Packaging," is merely a sub-division of Advertising and is combined with Labelling and is several removes from the only other cognate entry, "Packing," which is part of Purchasing, Shipping, etc., at 658.7. Yet a firm like the Metal Box Company would need scores of sub-divisions of this apparently minute subject and each of them classed in orthodox manner by the D.C. would need the initial 659.12 to introduce it. All that is saved if a single symbol, as P, replaces this initial number, and sub-division is continued from that point. It is because of this that so many special schemes have been created with independent notations; and, because of this too, the "self-perpetuating" schemes which are used in what is called *Depth Classification*, another term we owe to Ranganathan and the title of a volume he edited in 1953, are now advocated. This goes beyond the subject of this introduction, but the method can be followed to some extent in Chapter XVI and Appendix I.

167. The chief special classification with which the public library student is concerned is that of Local Literature. Several schemes have been suggested, the most elaborate being that designed primarily for the arrangement of photographic prints of Surrey by L. Stanley Jast and published in Gower, Jast and Topley's *The Camera as Historian* (Sampson Low, 1916). This is a subject arrangement, sub-divided by the place numbers from the quarter sheet of the Ordnance Survey. R. K. Dent and James Ormerod have also published schemes, of more general

application, and A. J. Philip an extensive one (*The Librarian*, vol. xxi, page 143 *et seq.*¹). The local classifier's object is to produce a detailed scheme with a brief notation, based on:

1. An arrangement of localities sub-divided by subjects; i.e.

Croydon: Churches.
Streets.
Parks,
etc.

2. Or, conversely, an arrangement of subjects sub-divided by localities; i.e.

Churches: Carshalton.
Chertsey.
Croydon.
Streets: Carshalton.
Chertsey.
Croydon.

and opinions differ as to which is the better of these. Economy in notation is got by substituting S for Surrey instead of 942.21 in Dewey or U830 in Brown. For example, in Brown, Croydon churches is J852U83, or conversely U830J852, which could be reduced to some such number as S7J852 by a special local classification notation.

168. It is convenient to insert here a few lines on the application of classification to Fiction. This has been accomplished with more or less success in Zella Allen Dixon's *Comprehensive Subject Index to Universal Prose Fiction* (New York: Dodd, 1897). It is believed that a subject arrangement of fiction would tend to reinforce other subjects, and it is true, for example, that the ideas of history held by most people are derived from fiction. Nothing, in our opinion, can justify the arrangement of fiction in the other classes in a general library; but there is no rule to forbid it. In the catalogue it may be desirable

¹ It is also published in book form by the author, Laird's Rest, Hythe End, Wraysbury, Middlesex.

to add entries of illustrative fiction. Thus Phillpott's *The River* may be classed under fiction and also under Dartmoor, as it is a very useful topographical work, but references of this character which are not sufficiently justified by the "amount of the subject" in the book should not be made, as they serve no useful purpose and may be irritating to readers.

169. As for special classifications of other subjects, a reference to bibliographies shows that there are scores of these which have been proposed and adopted for college, research, technical, commercial, works, law and other professional, and many other collections. Amongst them may be specially mentioned Cyril C. Barnard's *Classification for Medical Libraries*, London, 1936; Thomas S. Dabagh's *Mnemonic Classification for Law Libraries*, Berkeley, California, 1936; Raymond Smith's *Classification of London Literature*, Guildhall Library, 1926; E. S. Fegan and M. Cant's *Cheltenham Classification for Schools*, Cambridge, 1937, and the Institut International d'Agriculture's *Classification Scheme for Agricultural Science*, Rome, 1934.

170. On the principle that the classificationist should have system in his own doings, there are amongst special schemes those for the arranging of librarianship itself: literature about it, and every phase of its government and service, as reflected in its records, correspondence, and administrative documents. The standard schemes, beginning with Dewey, have all had classes to accommodate the subjects involved, but, as is shown above with other special subjects, many librarians prefer a specially constructed scheme. Of these the best known currently in this country is the *Tabulation of Librarianship*, 1947, by James D. Stewart, a very detailed scheme with an alphabetical base and decimal divisions, which covers most theories and practices in the average library to its date, and is simple and flexible.

171. The other scheme is Jast's *Classification of Library Economy* which appeared first in the introduction to

Brown's Subject Classification and was subsequently revised and published separately in 1907. It is a pure, decimal scheme with similar virtues to those present in the later scheme, but it has been found, quite naturally, to require considerable expansion to meet the developments in all fields of librarianship in the past thirty years.

172. READINGS.

Owing to the recent rapid development of special librarianship there is a large literature on it, much of it in periodicals. The publications of Aslib—the *Journal of Documentation* and the *Proceedings* of its annual conferences—are valuable sources; for American methods there is *Special Libraries*, the journal of the Special Libraries Association; advanced students should note the applications to special subjects of Colon methods in *Abgila* (University of Delhi); as well as the continuous occupation with special subjects, mostly in relation to the Universal Decimal Classification, to be found in the proceedings and communications of the *Fédération Internationale de Documentation* (The Hague).

In addition to the works named in the text, the following are helpful:

- WRIGHT, J. E. *Manual of Special Library Technique*. 1945. Aslib.
COLLINSON, R. L. *Cataloguing, Arrangement and Filing of Special Materials in Special Libraries*. 1950. Aslib.
SAVAGE, E. A. *Special Librarianship*. 1939. Grafton.
SAYERS, W. C. BERWICK. *Library Local Collections*. 1939. Allen and Unwin.
HOBBS, J. L. *Libraries and the Materials of Local History*. 1945. Grafton.

173. QUESTIONS.

- (1) What may be said to be the purpose and provenance of a special library or collection?
- (2) Explain why a general classification is considered by some librarians to be inadequate for application in special libraries.
- (3) What characteristics have been used as the bases of local literature classification?
- (4) Can a subject arrangement of fiction be justified?

PART III

PRACTICAL APPLICATION

CHAPTER XVIII

THE RULES OF CLASSING BOOKS

174. We have covered the main principles and circumstances involved in the construction of a classification; and are now faced with the consideration of the methods of applying a classification to books and other literary material; or it would be better to say, fitting books into a classification scheme. This has been aptly described by Richardson as "the highest function of the librarian's work." Before we take a more detailed scrutiny of rules, we may impress upon the student the rule that covers every other rule; and that is:

The convenience of the user of a library should govern all work in classing; i.e., place a book where it will be most useful.

But this should lead to consistent decisions. As the veteran classifier, William Stetson Merrill, has remarked,¹ the classifier should not be led to make decisions which will not be permanently useful "merely to meet casual needs of the library or passing interests of the public." Provision for such passing interests may be made by those temporary groupings of books called book-displays (see Chapter XIX, below). It is only when a book has a pull towards more than one subject, when the book has a second or even a multiple appeal, that this rule of convenience must be brought to bear. This is only a consistent development of the rule of the essential characteristic upon which we have insisted.

175. This axiom of convenience is carried sometimes

¹ *Code for Classifiers*, p. 2.

to a conclusion that is not desirable. Wide currency has been given to the statement already referred to that: "It does not matter in a bibliographical scheme where a topic is located so long as the place is constant and so long as the classification is properly indexed." Dewey declares¹: "Practical usefulness does not require that the ideas of this or that one be followed, but only that books of the same character be always put in the same place, and that there be some means of knowing readily what that place is. The Relative Index, with its catchwords, was designed and is found in use to meet both these requirements, for it ensures that books on the same phase of any subject coming before the classifiers shall be assigned to the same place, and that any reader seeking these books shall be referred instantly to that place. If this is done, all requirements of a good classification are filled. If this is not done, the system is a failure; for the only real test of any scheme is its helpfulness to its users." The last affirmation is indisputable; but there are other forms of helpfulness in a good classified library than the finding of books easily, valuable and indeed vital as that quality is. If it is carried to its logical conclusion the idea that it does not matter where a topic goes makes confusion of classification, and is a denial of its value. The work of a classification includes the placing of a topic in its sequence amongst related topics. If there is an order in a classification, it is surely because it represents an order in book subject-matter. We strongly believe what we have already affirmed that books leading up to a subject should come on the shelves on the left of those on the subject and those developing the subject into cognate and related subjects should be on their right. There is a modicum of truth, however, in the statement, seeing that classification order is liable to variation in its details, and it may be possible to choose between two places for a topic and yet not break the rule of convenience. The placing of Education at Psychology

¹ *Introduction*, p. 11.

or Sociology, or Psychology at Education, gives cases in point. This is a general question of order, but some schemes allow a choice between such placings, and in these the argument of Melvil Dewey applies that we place a book where it will be most convenient for the library user, index the choice, and use it consistently.

176. We may now summarize the general rules of classing, based upon those formulated by Melvil Dewey in the introduction to the *Decimal Classification*. They apply equally to any system.

General Rules for Classing.

1. Class a book first according to its subject, and then by the form in which the subject is presented, except in generalia and in pure literature where form is paramount.
2. In determining the subject consider the predominant tendency or obvious purpose of a book, and its author's intention in writing it.
3. When a book appears to belong equally to two places in the classification make a decision as to the one in which it is to go.
4. When a book deals with two (or three) divisions of a subject, place it in the one which appears to be the most important; or, if the parts seem of equal importance, in the one first treated. When more than two (or three) divisions of the subject are dealt with, place the book in the general heading which contains all or the majority of them.
5. When a subject arises for which no place is provided in the scheme of classification, find the heading to which it seems to be most nearly allied and make a place for it there.
6. Place a book in the most specific head that will contain it.
7. Avoid placings which are in the nature of criticism. Pros and cons of any subject go together.
8. Index all decisions, or new headings, which are not

already included in the index to the scheme; that is to say, make your index exactly represent your practice.

9. Finally (to repeat), *place a book where you think it will be most useful; and always have a reason for placing it there.*

177. These rules may now be developed in turn. *Class a book first by its subject* is rather simpler in statement than it is in actual practice. We have already seen that in the orthodox library classification books are arranged by their subject matter. This still puzzles some students confronted with books which have literary quality, even great style, and their impulse is to class them in Literature. This is wrong, of course. Works like Carlyle's *French Revolution*, Borrow's *Wild Wales* and Ruskin's *Ethics of the Dust* go under their subjects. But subject matter is not always easy to define. Books which deal with simple subjects, as *A Primer of Geology*, *Rudiments of Botany*, *A History of England*, *The Craft of the Plumber*, *Gothic Churches*, do not present any question as to what their subjects are; but there are works from which their subject has to be extracted. These are books in which the titles obviously convey no inkling of their content; as, for example, many works of Ruskin from *Sesame and Lilies* to *Fors Clavigera*, and there are others too numerous for mention. The subject of these must be found by a study of the preface, table of contents, and the index, which usually tell us what is wanted; but if they do not the book itself must be read. (Part of a librarian's equipment is the power to extract the gist of a book from it rapidly!) In general it may be said that monographs on single subjects present no real difficulties to the classifier.

178. It is only when some aspect of a subject forms the theme that difficulty arises; as in the case of

- (1) The Antiquities of Ship-Building.
- (2) The Legal Aspects of Temperance.
- (3) The Book-Keeping of Coal-Mining.

which call for an exercise of judgment. First, what is the subject; and, secondly, is the subject, the most useful

place? "The subject is the thing," we are told, and the standpoint is secondary. Is the antiquities of ship-building a book of antiquities, or one on ship-building? Do the historian and the antiquary or does the ship-builder want the book we are considering. I am inclined to think that while the historian may at some time require this book, the ship-builder is rather more likely to find an interest in it. No doubt the lawyer has to deal at times with temperance law, but it is of perennial interest to the temperance reformer and his opponent. Similarly the book-keeping of coal-mining may occasionally fall into the province of the accountant or book-keeper, but it is the daily business of the mine official. Our rule of convenience would seem to demand that

- (1) the history of a subject goes with the subject;
- (2) the law of a subject goes with the subject;
- (3) the book-keeping of a subject goes with the subject.

but that rule will also lead us in libraries specially for (or making special collections) for antiquaries, for lawyers or for accountants to place them so that the interest of the users is served. It is easy to conceive, in an antiquarian library, such a heading as "the antiquities of special subjects," in a legal library "the law of special subjects," and in an accountants' "the book-keeping of special subjects." Elementary as this seems, it is not always appreciated. General library practice follows the rules we have advocated; although, in the case of accountancy, A. J. Hawkes argues for the alternative placing, and this also is supported by Merrill. The matter is not of supreme importance, so long as convenience is served, consistency is observed, the method selected is indexed, and references are made in the catalogue from the other possible places.

179. Rule 1 tells us to class first by the subject and then by the form in which it is presented. What form is has already been discussed very fully in Chapter IV, and the bearing of the rule may be illustrated from a few titles

to which have been added the class-marks from the Dewey Classification :

	DEWEY
Pringle-Pattison. Philosophy of History	901
Earle. Outline of History	902
Baldwin. Dictionary of Philosophy	103
Ward. Essays in Philosophy	104
Journal of Philosophical Studies	105
Proceedings of the Aristotelian Society	106
Findlay. History and its Place in Education	907
A Collection of Extracts from the Philosophers	108
Alexander. A Short History of Philosophy	109

Every one of these books is on either History or Philosophy and must be classed there; but each is presented in a "form"; i.e., Pringle-Patterson's book is History from its *philosophical* point of view; Baldwin's, Philosophy in *dictionary form*, and so on. Our rule then means that we place the book under the subject, and add the symbol for the form; i.e., in Dewey, 1 Philosophy, 2 Outlines, 3 Dictionaries, etc.; and all modern classifications enable us to make these valuable distinctions.

180. In the case of the large majority of books there is no difficulty in determining the subject, irrespective of title, if the purpose of the author is ascertained; that is vital. But there are important exceptions to the rule of classifying by subject, the principal being that indicated by the rule itself—"except in the form classes where form is paramount." The form classes—Pure Literature; i.e., poetry, drama, essays, letters, which are works having a literary pattern, are never rightly arranged by their subject matter. The general practice is to arrange them either (1) under their form in an alphabetical order of authors (Brown), or (2) first under the language written and then under form and then chronologically (Dewey), or (3) in one chronological sequence under the language written irrespective of form (E. A. Savage) or in some other manner determined as these are by the fact that the user's interest in pure literature is in literary character and quality and not in subjects written about.

181. There are other books which are interesting because of some special characteristic which has little or nothing to do with their subjects. Thus, incunabula, book rarities, manuscripts, works from special presses, and so on, will come into other places in the classification than those of their subjects. They are really museum bibliographical specimens and are to be treated as such.

182. A book should go into the most specific place that will contain it. Cutter's rule, "be minute, be not too minute," is a general axiom without much to commend it in the modern growing library. Clearly, to use an example, if we put all books on Botany under the Dewey main division number, 580, we get a hopeless mixture of botanical works. When a scheme of classification is chosen it should be tampered with only after the most serious consideration, and the selecting of parts or a limited use of a classification is in the nature of tampering. It is almost as bad as the making of alterations and adjustments of schemes—a pastime to which the untutored librarian is prone. Sometimes, to obtain a supposed simplicity and because the library is small, only a part of the classification is employed. But the library does always grow. Those who have seen in a large library the unhappy welter in Dewey's 790 of Boating and Ball Games in one place, of Fishing, Hunting, Mountaineering and Shooting in another, that occurred before the most recent editions of Dewey revised this division, had before them an awful example of insufficient classification. To restrict the application of Dewey to three figures throughout, as some have advocated, would lead to similar confusions. Although it is undesirable to lay down too rigid a rule on the matter, my own experience suggests that it is much better to use the classification to its full extent than to use too little of it. The only objection to full use is that a long number is thought to be confusing when a library is small; but that is a mere illusion. If part use is made of a classification, when the day of inevitable alteration comes the

expense of changing all the records, catalogues and books involved is formidable.

183. Rules 3-4 may be considered together. We can put a book only in one place on our shelves; but there are many books which appear to belong to more than one place. This may be illustrated from such a book as Stewart and Gee's *Electricity and Magnetism*, where to all intents and purposes the treatment of each subject is of equal account. This goes under the first-named in the title *Electricity* (Dewey, 537) with a reference in the catalogue from *Magnetism* (538). Another example is Lubbock's *Ants, Bees and Wasps*. It is true that the creatures treated are all insects, but in a minutely classified library many volumes will separate the ant from the bee, and students of bees, for example, will want this book apart from ants or wasps. We consider, therefore, which of these subjects is most fully dealt with in the book, place it under that, and cross-reference from the others. If the book dealt with more creatures, say ants, weevils, bees and wasps, economy would suggest its place as under the general head, *Insects*, with cross-references only from such subjects as seemed imperatively to demand it. Trivial cross-references are the bane of many a catalogue and should be avoided. Another work which demands this exercise of judgment is Croce's *Ariosto, Shakespeare and Corneille*, where the essay that leads off is much shorter and probably less important in every way than the great Shakespeare essay. Under the dominant subject, Shakespeare, this work should go, with cross-references from the others. The application of the Rule (4) to such books appears to be simple when once the question of the predominant interest of the book is settled.

184. More difficult is the book which appears to belong to two places equally, either because its subject is not more clearly a part of one class than another or because it is difficult to distinguish between subject and treatment. An exercise of judgment was needed when the Einstein

Theory appeared, especially as few could grasp it! A choice had to be made between Gravitation and Electricity, and was made. It is now regarded as a General Physical Theory. Such quite new subjects come only once or twice in a decade. The more constant problem is provided by such books as Drummond's *Natural Law in the Spiritual World*, Huxley's *Science and Hebrew Tradition*, Haddon's *Evolution in Art*, and there are many others. Here the place can be determined by three considerations, first the already-mentioned "intention of the author," second "the subject for which the author is best known," and third (usefully but by no means surely) the impression the title makes on the mind. Drummond was a theologian; his title gives the notion of the Spiritual World rather than of Natural Law, and Theology is the right place. Huxley is more difficult; he was certainly a biologist, a scientist; but he was using science to attack a particular form of religious culture; his purpose then is with Hebraism, and there the book belongs. Haddon's book is a biological treatment of Art (design), in which it must go; but much may be made of the fact that Haddon, being a biologist, is seeking the evidence of Art in support of Biology. In every such case entries will be made in the catalogue under the alternative subject.

185. Rule 5 is intended to cover such very occasional cases as that of the Einstein Theory mentioned above. It merely means that the classification, which we presume has a flexible notation, must be expanded at the appropriate place whenever a subject occurs which is not named in the schedules. Brown shows how this is done in the Introduction to his *Subject Classification* (ed. 2, 1914, page 14):

"If any new or other subject is found unrepresented in the tables, either as a general covering head, or special topic, a place is made for it—by . . . adding the units 0 to 9 as found necessary. Thus, suppose we have Christian Strugglers, Christian Travellers, Christian

Worshippers, and it is necessary to insert them between K951 and K952, they can be added thus:

K951	Catholic Apostolic Church.
K9510	Christadelphians.
K9511	Christian Strugglers.
K9512	Christian Travellers.
K9513	Christian Worshippers.
K952	Christian Endeavour Society.

. . . By this means ten entirely new places can be found between every existing number."

This can be done in every expansible classification. The example of radium is often quoted. In earlier editions of Dewey this naturally could not appear. The section of Chemical Metals, to which it belongs, appeared thus:

546.4	Alkaline Earths.
546.41	Calcium.
546.42	Strontium.
546.43	Barium.
546.44	Magnesium Group.

When Radium occurred, it was inserted by the decimal expansion of the notation, thus:

546.43	Barium.
546.432	Radium.
546.44	Magnesium Group.

The warning should be given not to make such places until you are sure that the subject is a new one and not merely an old subject disguised under some synonymous name.

186. Rule 7 is to the effect that our placing of a book must be strictly in accord with the author's purpose and not be coloured by any view of our own on the subject. Mead's *Did Jesus Christ Live B.C. 100?* obviously raises the question of the authenticity of the Gospel narrative; but it is nevertheless a life of Christ, or material thereon, and must not be classed as Scepticism, Atheism, or what not. We may think Astrology to be a delusion, but a book on

Astrology must go in Dewey either at Astronomy, which really shows its historical aspect, or, as I think better in a modern view, under Mind and Body at 133.5 (Psychology) or at 159.9615 the special extended alternative for Psychology. There is no end to the variations of this possibility of critical classing. Common sense will usually prevent the commission of this fault; but the classifier must learn to subordinate his own opinions of subjects to those of his authors. It may be added that in books that are controversial the pros and cons of the subject are placed together unless the classification directs otherwise.

187. Rule 9 is simple, but necessary. Every decision we have to make in classification implies some departure from or addition to the information given in the printed indexes of the scheme we are using. Such alterations must be clearly entered in the index, in order that uniformity in the placing of the subject may be assured.

188. The Rules we have given are those of most consequence in classing; but a few further points should be discussed. In approaching the arrangement of a library one has in many subjects a choice of arrangement between a subject place and a geographical place. For example, *The Meteorology of Madeira*, *The Birds of London*, *The Geology of the Thames Basin* afford possibilities of classing these works under Meteorology, Birds and Geology, or under Madeira, London and the Thames. There is sound reason for saying that they will be equally useful under both subjects; and under both they ought to appear in the catalogue. When such reason seems to exist we fall back upon the fact that our classing is by subject, and the subjects in the examples are covered by the three first terms. Hence, in general, a subject arrangement, divided geographically, is to be preferred. It is unwise to separate subjects, even when the "place interest," as in the examples given, is very strong.

189. The question of collected works will often arise; for example, a set of Carlyle, or Ruskin, or Darwin.

Should these be retained as sets or be divided according to the subjects of the various volumes? I am in favour of division on the ground already emphasized that our classing is by subject. To have a collection of books on the French Revolution and to exclude Carlyle's *French Revolution* from it appears to me without justification. The only exceptions to this rule are (a) when an edition has peculiar rarity or beauty (as coming from a special press—and then presumably it is a bibliographical specimen and not a book on a subject), or (b) when the treatises are so printed in the volumes that they overlap and so make physical division impossible.

190. Modifications of schemes of classification have been condemned sufficiently already. There are, however, modifications on which there is some agreement and in which even the compilers of classifications concur. These usually occur at Pure Literature and Biography. Fiction (usually marked F) is taken out of its sequence and arranged in a separate sequence alphabetically by names of authors. Poetry and Drama in each language are sometimes amalgamated, and also alphabetized; sometimes they are alphabetized in one sequence irrespective of language; but this is poor classing. Biography is sometimes made into a separate class (usually marked B) in which the books are alphabetized by the names of the persons whose lives are told. The arrangement suggested here for Fiction and Biography is a highly practical one for public libraries. Biography, however, is sometimes distributed throughout the classification at the subjects with which the persons biographed were identified; but this is not without its difficulties, although its uses are very great. Fiction is sometimes classed on the shelves by its subject, but there is no justification for this placing of quite clearly imaginative works in the literature of facts. The removal of classes or parts of classes from their sequence makes what is known as "Broken Order."

191. Although the classing of fiction by subject on

shelves is to be avoided, a case can be made for adding entries to the classified catalogue for novels which have a subject interest. Thus Hardy's novels may be classified there at Dorset, those of Eden Phillpotts at Devon, Blackmore's *Lorna Doone* at Exmoor, Reade's *It's Never Too Late to Mend* at Penology, Ward's *Robert Elsmere* at the Oxford Movement, and so on. Historical novels lend themselves specially to such classing; but these should be catalogue entries and there should be no pretence that these books are treatises on the subjects they illuminate. Dr. E. A. Baker, in his monumental *Guide to Historical Fiction*, and in the index to his equally-important *Guide to the Best Fiction*, has shown how valuable such cataloguing may be.

192. One or two other general rules may be mentioned. Works about other works, i.e. Criticisms, etc., go with the work treated; thus Dowden's *Shakespeare; His Mind and Art* with Shakespeare's collected works. Translations should stand beside their originals. Concordances stand with the work concorded. Usually the teaching of a subject goes with the subject and not at education. Many other usual decisions are given in the successive lessons in Part IV.

192.1. From the foregoing paragraphs it will be gathered that classing calls for the exercise of an average amount of common sense. Much of the difficulty in the application of existing schemes by inexperienced people, or even by experienced people unacquainted fully with the schemes, arises because the purport of a division is not fully realized. It is impossible to place books with any degree of accuracy unless the user of the scheme has a complete conspectus of it in his mind and recognizes the *main* group into which the subject he is classifying falls. Many subjects are mentioned several times in Dewey, and the novice often puts a book at one of these without in the least considering whether the book articulates into the division of the class in which the name of the subject appears. Thus, we remember that Defoe's

History of the Great Plague has been classed by more than one librarian under Therapeutics. When this cardinal principle is assimilated it will be clear that classing can never be carried out from the index of a scheme, however good the latter may be. There are, of course, many occasions where the line of demarcation between two headings is so fine as to make the choice of place arbitrary, and it is improbable that any two expert classifiers will place every book alike. This is the justification of the often repeated assertion that classing is an art—something that demands the exercise of judgment—rather than a science—something fixed by inflexible rules, excluding judgment. In essentials, however, it will be found that obedience to the rules laid down in this chapter will result in a measure of uniformity.

193. Our remarks have been directed so far to the needs of the general library. The rules apply with almost equal force to the special library, but the place chosen will be determined by the characteristic essential to the purpose of the library. A legal library will doubtless regard any book whatsoever as throwing light on particular laws; the anthropological library will treat every book as it bears upon man, and so on. But, after all, this is only another adaptation of Rule 9.

193.1. Ranganathan has added to his services to our subject the most detailed and searching classing exercises that have appeared in his *Library Classification Fundamentals and Procedure: with 1008 graded exercises*. The writer describes the book almost adequately, but it should be added that in it is discussed almost every kind of problem that faces the classifier, class by class, with methods of eliciting the subject to be classed and of fitting the book into the Colon Scheme. That is the intention of the book which, however, gives comparatively the placings of the same subjects, when this is possible, in the Dewey Scheme. There is an engaging freshness of approach and an intimate and pleasant mode of working. He also reviews the principles in his individual manner. Perhaps

¹ Madras Library Association (London), 1944.

the book and the procedures are over long for British and American students but as a "court of reference" the book is an acquisition to the literature of practice. See Chapter XVI and Appendix I.

194. READINGS.

Introduction to the *Decimal Classification*.

Introduction to the *Subject Classification*.

JAST. "Library Classification" in Greenwood's *British Library Year Book*, 1900-1.

MERRILL, W. S. *Code for Classifiers*, pp. 1-20.

SAYERS. *Manual*, Chapter XXII.

Re-read Richardson's *Classification*, Lecture II.

BLISS. *Organization of Knowledge in Libraries*, Chapters VI-VII.

— *A System of Bibliographic Classification*.

[The introduction.]

Various articles in the *Library Association Record*, as follows, may be read with profit:

ANDERTON. "Books brought into Relation and made operative." Vol. vii, pp. 443-58, 1905.

HOPWOOD. "Reference Shelf Placing." Vol. vi. pp. 241-60, 1904.

195. QUESTIONS.

(1) State the advantages and disadvantages of breaking-up collected works and series.

(2) When is a decision necessary in classification? State what principle is involved in decisions, and show how you would record them.

(3) State the arguments for and against using the whole of a classification rather than an abridgement.

(4) Demonstrate, with examples, the rule, "Classify by topic, and then by form."

(5) Describe the methods of "Broken Order" usually employed in general libraries.

(6) How are new subjects dealt with in a classification?

CHAPTER XIX

THE CLASSIFIED CATALOGUE

196. It is only a step from the classification index to that greater key, both to the classification of books and to the books themselves, the classified catalogue. The first catalogues, such as those of vendible books issued by Aldus and Maunsell, or according to their schemes, were classified. Classification of books on the shelves, as we know it, is a much more recent affair.

197. In modern definition a classified catalogue is one in which entries of books are arranged in the exact order of the classification. Presuming that the catalogue is a printed one, it is a book in which the chapters are the main classes of the classification, the divisions its paragraphs and the sub-divisions its sentences. The ideal classified catalogue carries the arrangement of the classification out to the most specific place, and then arranges the books, where there are more than one, at the specific place, in some convenient order, such as chronologically by date of first issue, or an order the reverse of this so that the latest book comes first in the list, or in order of authors' names, or an order of merit, which places the best book first, or, again, the elementary book first. The most logical of these sub-arrangements is the chronological one; the most popular is the alphabetical.

198. The three forms of catalogue that have the general approval of librarians are the author catalogue, the dictionary catalogue, and the subject or classified catalogue. The author catalogue is of small use except to readers who know (and remember) the names of the authors of the books they want to read. The problem of the dictionary and the classified catalogue is one and the same; and that is to bring books into relation with one another. This the dictionary catalogue seeks to do by arranging in one alphabet entries for author, subject and title of every book: the whole forming, as the name

implies, a dictionary of entries of the books involved. It is a most popular catalogue, and, if a perfect example existed—the nearest approximation to it is the Catalogue of the Surgeon-General's Library at Washington—it would be invaluable. Unfortunately perfection is difficult of attainment; it certainly has not been found in such examples as I have examined. The principle of subject entry in the dictionary catalogue is the point with which we are mainly concerned. It is this: subject entries in a dictionary catalogue must be made under the most specific heading (or subject) with a reference from the more general subject. This means simply that if we have books on Mont Blanc, the Alps, Lake Geneva, Berne, and Lausanne, we must not enter them under the general class-heading History and Travel, or the division Europe, or the sub-divisions Alps, Savoy or Switzerland, but directly under

Alps,
Berne,
Geneva,

Lausanne,
Mont Blanc,
etc.,

and under the larger headings, Alps, Savoy, etc., we should simply put works that deal with the Alps and Savoy as a whole, and add at the end of the entries for these the reference "See also Mont Blanc," etc. Now this is a very convenient arrangement for the general reader who wants in the quickest way the books on Berne, Geneva, etc.; but the defects of the method from the point of view of the student are obvious. The five subjects I have named are at five different places in the alphabet and to exhaust the whole subject of the Alps these five references and many more would be necessary; in short, related topics are merely connected by cross-references, and are not seen in sequence.

199. On the other hand, the properly constructed classified catalogue can be made to yield all the virtues of the dictionary catalogue, and the invaluable special virtue of its own: that of bringing books into relation in one sequence. The classified catalogue is the classification scheme with the entries of the appropriate

books under each heading; and the index to the classification scheme should prove to be the ideal index to the catalogue.

200. The parts of the classified catalogue, in its printed form, may be set out briefly. It should consist of:

1.—An outline of the classification, as a contents list showing the general arrangement.

2.—The entries of the books arranged in the precise order of the classification.

3.—Author, subject, and, possibly, title indexes.

201. The indexes are usually brief, although their limits may be extended greatly if means permit. The following book entry from a Dewey catalogue, with its separate index entries, will show us what is required in a really good classified catalogue:

Main entry.

575 Darwin, Charles.

Origin of Species. Illus. 375 pp. Cr. 8vo. 1855.

Index entries.

Darwin, C. Origin of species	.	.	.	.	575
Darwinism	.	.	.	.	575
Natural Selection	.	.	.	.	575
Origin of Species	.	.	.	.	575

The arranging factor of the main entry, it will be observed, is the notation, the class-mark 575, which brings this book into the group containing all other books on 575 or Evolution; while the indexing is so complete that under whatever form the work is sought it can be found.

202. We cannot do better than take a sample book and catalogue it according to the principles laid down, bearing in mind also the important distinction between cataloguing and classification, implied in paragraph 60, and to be developed later in paragraph 204: that while the book can go in one place, and in one place only, on the shelves, it can go into as many places in the catalogue as its composite or other special character seems to require. Here then is our book:

570.3 DUNMAN, THOMAS.

A Glossary of Anatomical, Physiological and Biological Terms. Edited by V. H. W. Wingrave. 187 pp. Cr. 8vo. 1889.

580 611 612

It will be seen that this valuable little book deals with biology 570—that, indeed, on examination proves it to be its dominant topic—and examination also proves it to be concerned with botany, 580, as well as the other subjects named in its title, anatomy, 611, and physiology, 612 (Dewey numbers). We make all these classification references as shown at the foot of the entry; and the cataloguer will make a copy of the entry for each of these references; so the book is analysed into each of its subjects. One entry is sorted under each number, and the classification order is arrived at automatically.

203. It will have been noticed that this system can be applied readily and economically to card catalogues in conjunction with printed cards or cards duplicated in other ways. The great Library of Congress card-distributing scheme is worked upon the unit-card principle. That is to say, one card is printed for each book, and on it are shown all the cross-references and related subjects, as in the example we have just examined. For our card catalogue we can obtain as many copies of the unit-card as there are such references, and merely write each cross-reference number on the top left hand corner of one of the cards, in red or other coloured ink, above the shelf-arranging number; and then insert the cards under the added numbers in our card catalogue. Thus one operation of cataloguing and classification may be made to serve all purposes of main entry and cross-reference.

204. It is desirable to emphasize the undoubted advantage, from the revealing point of view, of the classified catalogue as compared with shelf classification: its exhausting and analysing power. There is little in books of practical use which cannot be got into a well-arranged and exhaustively-indexed classified catalogue;

whereas on the shelves, classification, however perfectly applied, can put a book into one place and no more. The value of the classified catalogue to the student must be evident. He is shown from every useful point of view entries of the whole of the books on every subject in a logical sequence. He can see with very little difficulty all and the related subjects; in short, see the *families* of books; so can gauge the extent of any subject with some definiteness. This he can do with no other form of catalogue.

205. A practical point in connection with all catalogues may be mentioned. Every printed catalogue is necessarily out-of-date the day it is published in relation to a library to which additions and from which withdrawals are made. Thus, the cost of the printed catalogue is beyond the means of most libraries. A manuscript or typescript card or sheaf catalogue can never be open to this objection. The printed *classified* catalogue, however, can be published a class at a time, and so the classes in which alterations are most frequent can be published more often than the others. There is an economy here which is impossible with the author or dictionary catalogue.

206. In printing the classified catalogue the principles of type subordination implied in the fact that the main classes are the chapters, the divisions the paragraphs, and the sub-divisions the sentences, should be observed as far as possible. The notation is the key to the arrangement, and is therefore printed before each heading; thus¹:

300	SOCIOLOGY.
370	EDUCATION.
370·9	History of Education.
370·944	HISTORY OF EDUCATION IN FRANCE.

and under each of the headings, so distinguished and subordinated, the titles of the books are written in the alphabetical or logical order which has been settled upon.

207. Two forms of catalogue that have vogue are the card and the sheaf forms. Both are based on the principle

¹ Although the choice of types is an individual, very changeable matter.

that if a separate card or slip of uniform size is used for each entry, the entries can be held loosely in a receptacle so that they can be arranged in any order, and can be added to or subtracted from as needed. The *Card Catalogue* is the more popular. The international card is approximately 5 inches long by 3 inches high, and it has been given great validity by its adoption for the catalogue of the Library of Congress, which prints its cards with both its own and the Dewey classification numbers. The cards can be bought by any library for its own cataloguing purposes. It is also used by the *Fédération Internationale de Documentation*. The cards are usually kept in specially constructed card cabinets, guided as shown below.

208. The *Sheaf Catalogue* consists of tough paper slips, to hold entries in the manner of the card catalogue, but the slips are bound in loose-leaf binders (sheaf-holders). The catalogue has therefore the advantage of book form, and occupies less space than its rival. It is usually guided by projecting coloured index tabs bearing the class-marks.

209. The classified card catalogue is made effective by clear and liberal guiding. The card entry itself is as shown in Fig. 1.

370942	Balfour, Graham	
	Educational Systems of Great	
	Britain and Ireland 31+307pp Ed 2.	
	1903, Clarendon Press	

Figure 1. Card catalogue entry.

The main classes are each indicated by a unit guide card; i.e. a guide card with the tab projecting across the

300 SOCIOLOGY

Arranged as under:

- 300 GENERAL
- 310 STATISTICS
- 320 POLITICAL SCIENCE
- 330 ECONOMICS
- etc*

Figure 2, Main class guide card.

whole of the card. On the tab are written the notation and name of the class; and lower on the guide the divisions are set out, as shown in Fig. 2:

Divisions have half guide cards, and sub-divisions, quarters or eights, as shown in Figs. 3-4.

The sub-divisions of each division and sections of each

330 POLITICAL
ECONOMY

- 330 GENERAL
- 331 Capital Labour and Wages
- 332 Financial Economics
- 333 Lands ownership, etc.

Figure 3, Divisions guide.

sub-division are set out on the cards in the manner indicated.

210. The classified catalogue is sometimes used as a

370.9
History of Education
370.92 in England
370.94 in France
370.95 in Italy
etc.

Figure 4, Sections guide.

Shelf Register, seeing that in its classified order it is arranged as are the books on the shelves, but a thorough classified catalogue is complicated by innumerable references and cross-references, which break up that order. Separate registers are sometimes kept on cards. These consist of brief catalogue entries, of about this character:

160 Jevons. Principles of Science.					
1934	1935	1936	1937	1938	1939
1940	1941	1942	1943	1944	1945
1946	1947	1948	etc.		

These are kept in class-number order, and form a rapid guide to the individual works in each class. The squares are for use in stock-taking, a tick being placed

against a year-number when the book is present at that operation.

More often a ruled sheet is used, which will carry many entries; thus:

160									
Author	title	1934	1935	1936	1937	1938	1939	1940	1941
Jevons	Logic	✓							
Read	Logic	✓							
Wilton	Logic	✓							

These sheets are filed unbound in boxes, of course in classification order, spaces are left for accessions, and each sheet when filled can be rewritten.

211. READINGS.

BLISS. *Organization of Knowledge in Libraries*, Chapters VIII-IX.

BROWN. *Recent Developments in Library Practice*. In Greenwood's *Year Book*, 1888-1892.

— *Library Classification and Cataloguing*, Chapter VI and p. 152, et seq.

VINE. *On the Construction of the Subject Catalogue*. In *The Library Association Record*, vol. xi, pp. 486-507.

SAYERS. *Manual of Classification*, Chapter XXVI.

SAYERS and STEWART. *The Card Catalogue*, Chapter VII.

SHARP, H. A. *Classification and Cataloguing*. In *his Cataloguing*, Chapter XXVI.

STEWART. *The Sheaf Catalogue*, Chapter VII.

212. QUESTIONS.

(1) Define the author, dictionary, and classified forms of catalogue respectively.

(2) Compare the merits of the dictionary and classified catalogues as instruments for the revealing of the subject matter of books.

(3) What is the usual arrangement of a classified catalogue;

and what arrangements of entries may be made under specific headings?

(4) What indexes should be provided in a classified catalogue?

(5) Explain the "unit" principle of cataloguing as applied to the card catalogue.

(6) Assume that you are to provide a classified catalogue of 10,000 volumes, according to the Dewey system. Explain how far you would sub-divide the subjects; and give examples of the main and index entries proposed. Then write a brief preface, addressed to the reader, explaining how to use your catalogue.

CHAPTER XX

PRACTICAL SHELF ARRANGEMENT

"It is an immense advantage to bring the eye in aid of the mind; to see within a limited compass all the works that are accessible, in a given library, on a given subject; and to have the power of dealing with them collectively at a given spot, instead of hunting them through an entire collection."—W. E. GLADSTONE.

213. Preliminary to our consideration of the question of how to shelve books comes the fact that most libraries are a series of parallel libraries. In the general public library, for example, there are reference, lending and children's departments as a rule; there are branch libraries, which in turn may have some or all of these departments; and there are stack rooms in which books beyond the shelf-capacity of public departments are housed. To some of them are also attached commercial, technical and other special departments. Similar problems occur in every kind of library, and perhaps reach greatest complexity in the collegiate libraries which have a special collection for every faculty as well as a general library. The ideal order of the books on the shelves is the order of the classification (as from 0 to 9 in Dewey), but clearly this is not possible except in the rarest circumstances. The books, wherever they may be shelved, can be brought together in subject order in the classified

catalogue, but in actual practice there only. It is usual, therefore, to have in each of the collections a classification paralleling the others, and to indicate it in the catalogue and on the books by prefixing to the class-mark some symbol, such as R Reference, J Children's, C Central, and other similar arbitrarily-chosen initials, representing departments.

214. The matter is not even as simple as that. In each of the separate libraries it can be seen that books of varying sizes present a difficulty to the classifier, and former librarians, with more regard for neatness than practical requirements, dispensed with classification by subject and generally arranged all the octavos together, all the quartos together, and so on. No doubt a measure of solidity and tidiness resulted, but the modern librarian who wished to maintain a strict classification sequence often finds a duodecimo side by side with a folio. To range such books together would not only mean a large waste of vertical space on the shelves, but would also be highly inconvenient owing to the tendency of small books to hide themselves between larger ones. The solution lies in what is known as "parallel" classification; that is to say, the librarian first arranges his books into two sizes or more. The following is a convenient arrangement:

Octavos and smaller works.

(Books not exceeding 10 inches.)

Quartos.

(Books exceeding 10 inches, but not exceeding 12 inches.)

Folios.

(Books exceeding 12 inches.)

He then makes three sequences of books on the shelves, one for each size. It is usual to indicate in the class-mark the sequence to which the books belong, as, of course, the books range together in the catalogue irrespective of size. Octavos receive simply the class-mark; the class-marks of quartos are preceded by q, those of folio by f; i.e. books on general botany in the respective sizes would be

marked 580, q580, f580. The method of some libraries is to run the sequences one above another in the same bays; the top four shelves all along may be devoted to a running sequence of octavos, and next two to a sequence of quartos, and the bottom shelf to a sequence of folios. The sequences must run independently of one another or confusion may occur. In other libraries it is usual to shelve the quartos and folios in respective sequences at the end of each class. A third method, and the one that commends itself to us as least likely to confuse the reader, is to have complete size sequences not of classes but of the whole collection; thus, in a Dewey classified library the complete sequence of 0-9 of octavos would be followed by 90-99, and that by a similar complete sequence, 10-19. This would prevent the mystification an unaccustomed reader would probably feel on finding the same numbers at two or more places in one set of shelves.

It may be remarked that in the ordinary library two sequences (1) octavos and (2) oversize books, are found to be sufficient.

Books of less than 100 pages are usually regarded as *pamphlets* and are marked p, and are sometimes kept in another parallel classification.

215. When a class is moved out of its natural sequence in the classification, the result is what is called "broken order." This happens when it is desirable, in order to facilitate the service of the library, to place fiction nearest the delivery desk, or to make such adjustments of fiction and travel, or any other class, as were commented upon in paragraph 190. In the indicator or other barrier library it is very desirable to have the most frequently used books near the point of service; in the open-access library it is desirable to run the fiction round the walls of the room or to distribute it in some simple but widely spread manner, in order to avoid congestion of traffic at any point. Broken order should only be resorted to when some definite gain arises from it, as the advantages of a strict sequence of classes are very great.

216. Having classified the books and brought them to the shelves, the arrangement of individual books comprised by the class numbers must be considered. Alphabetical arrangement within each topic by the names of authors (or by the first word not an article in the title of anonymous works) is probably the most convenient method for general libraries. To secure this arrangement the Cutter, Merrill, Jast. or other "author-marks," may be used. In some libraries, however, the books are arranged chronologically by the date of publication, upon the thesis that every book is influenced by the books preceding it. This is an attractive idea, but it is not easily grasped by all readers. The classifier would do well to determine whether a wider adoption of the alphabetical order would not be more practically valuable than the order proposed by some classification systems. In Dewey, for instance, the classes in 800 are better for general purposes, in alphabetical than chronological order, but the latter is undoubtedly best for college and similar libraries. Biography, again, is advantageously arranged in alphabetical order.

217. It is not enough to have accomplished the arrangement to this point. Guides are necessary, or desirable, as follows:

- (1) To the plan of the collection.
- (2) To the classes.
- (3) To the bays.
- (4) To the individual shelves.
- (5) To individual topics.
- (6) To individual books.

and, in addition to these various cross-references are necessary.

(1) The best guide to the general collection is a large plan of the library setting out the position of each class, and distinguishing it by a different colour, with arrows or other signs indicating the direction in which the classes run. A framed plan in a prominent position is a valuable

key to a library. Of course this applies, from the public point of view, only to libraries to which the public have access to the shelves, but it may have value from a staff point of view in other libraries.

(2) The classes are guided by a large label placed either at the top of the case in which the class begins or in the top centre of the class. Such class guides may simply bear the name of the main class in large capitals, but they are more useful if in addition they set out the principal divisions; e.g.:

300 SOCIOLOGY.

300 General Works.	360 Associations and Institutions.
310 Statistics.	370 Education.
320 Political Science.	380 Commerce and Communication.
330 Political Economy	390 Customs and Costumes (Including Woman and Gypsies.)
340 Law.	
350 Administration.	

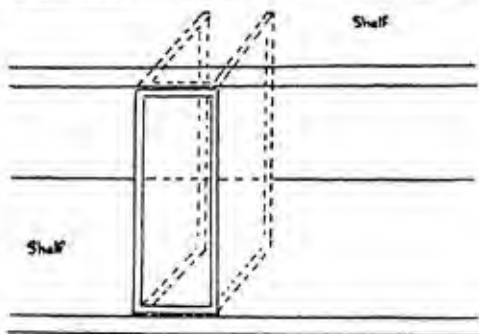
A common class guide.

An attempt may be made to make these guides as attractive as is compatible with clearness. Ugly black letters on white card are common but unpleasant features of some libraries. Guides should always be framed, as nothing is more offensive in a library than dirty and warped guides. In some places in addition a swinging or projecting sign at the end of each case denotes the class contained in the case; so that, standing at a certain angle of vision, the visitor has a conspectus of all the classes before his eyes. This method is adopted in the Islington Libraries.

(3) A good deal of ingenuity has been expended in guiding the bays (vertical ranges of shelves usually 3 feet long). Perhaps the most ingenious method is that devised by Jast and described by James D. Stewart in *The Library*

World, vol. vii, page 116. It consists of a block of wood with a framed diagram of the actual shelves fixed in front of it after the manner shown on page 194.

This excellent guide is rather expensive and has the additional disadvantage of occupying the average space of three volumes in each bay; it is, however, the most effective guide we know. Variations of this guide are (1) a frame that is hinged on to the left upright of each bay of shelves, is glazed both sides, and carries on one side the diagram of the shelves, and on the other side any notes the librarian may wish to make about books; (2) a card, eyeletted at the top, which is fitted on a brass hook on the left upright, and bears the diagram on its front. Both of these guides are illustrated in the *Manual of Classification*.



L. S. Jast's bay guide.

The subjects contained on the various shelves are written on the appropriate places on the diagram.

Another very good method is that described by Mr. E. A. Savage in *The Library World*, vol. viii, pages 261-6, in which a schedule of the subjects covered by the bay is fastened in a large cover and inserted at a suitable place in the bay.

(4) Guides to individual shelves are satisfactory only in fixed location systems, where the topics have invariable places on the shelves. Where they are used, a label as shown :

370 EDUCATION.

is affixed to the front edge of the shelf. The difficulty of applying these to a relative location is that the moving up of books to accommodate additions involves the moving of the labels. Such labels are stocked by the various firms dealing in library requisites, but they are the least satisfactory guides we have, and in my view are practically valueless. They are usually protected by a xylonite label holder which folds under the shelf.

(5) The guiding of individual topics has received much attention in open shelf libraries. A favourite method is the insertion of a narrow block resembling a book, with the name and number of the topic running up it vertically, amongst the books at the beginning of each topic, as shown :

370 EDUCATION.

Newbury's topic guide.

The size is about that of an ordinary octavo; the back is flat and is about half an inch in breadth. These guides are made in cloth-covered millboard by a binding firm for a few pence each. The objection to the guide is that it occupies shelf space and is easily confused with a flat-backed book; but it is one of the most efficient of guides. A simple method is to cover a discarded book with white paper and use it as above. (It is not recommended as readers have been known to remove the paper carefully

in order to find the prize within!) Another guide, tried with success, is a thin sheet of millboard covered with white paper on which the topic is written at the top corner, the whole being varnished to preserve it. This sheet is $7\frac{1}{2}$ inches by $9\frac{1}{2}$ inches and is inserted at the beginning of the topic, and, being larger than the surrounding books, its information shows above them. The result is that the reader standing at the end of the shelf sees all the topics by glancing along it. As the topic appears on each side of the card (in that top corner nearest the front edge of the shelf; on both sides, of course), he is able to see from either end all the topics the shelf holds. It looks rather untidy.

(6) The method of guiding the individual book is generally by showing the class-mark and alphabetizing number in some way on the back of the cover. Wherever possible, it is preferable to stamp these in gold on the binding, and although this necessitates a visit of the book to the bindery, it is by far the best and, ultimately, most economical method. The waste of time in the average library involved in the soulless task of sticking on tags, which our readers (who dislike them) almost invariably tear off, is absurd. Where necessity rules, however, paper tags or a white paint are sometimes used. Several white paints are suitable; we may instance that made by Cedric Chivers, Ltd.; but they have all a tendency to wear off.¹ Tags are used in various shapes and colours, but a round white tag will answer all purposes. Polychrome tags, however, have been extensively used; one library, indeed, experimented with a tag made up of proportions of colours representing the main class, the division, and the section; thus 300 might be blue, but 310 would be two-thirds blue and one-third yellow, while 315 would be three-sixths blue, two-sixths yellow, and one-sixth red—and the whole formed one tag! If the method were carried out in a large library the staff would have no time for any other work than the making of tags. Colours are usually con-

¹ Gaylord Brothers sell an electric "pen" by which numbers in gold or colours can be written easily on the backs of books. This pen is likely to supersede all methods but the bookbinder's gold stamping.

fined to classes; thus all 000 may be red, all 100 blue, all 200 green, and so on. The distinction between classes is often indicated by shapes; the tag for 000 being round, that for 100 triangular, for 200 square, and so on. But, as already remarked, a round white tag would meet all requirements. A minor discussion has taken place as to where upon the back of the book the number, or tag bearing the number, should be placed. Most librarians prefer a position one inch from the bottom of the book on the score of regularity and neatness. Others prefer it as near as possible to the top on the score that the bottom of the book is the part most handled and numbers there are more likely to be rubbed off; moreover, as a reader looks for a book first by class-number, then by author, and finally by title, the information should appear on the book in that order. Numbers at the tops of books give the library a curious switchback appearance. The method of writing the number on the back of the book is usually in the form of a fraction, the class number being the numerator and the author number the denominator, as:

$$\begin{array}{ccc} 581 & & 581 \\ \text{Hoo} & \text{and} & \text{H49} \end{array}$$

Generally, the numbers used are too large and disfigure books.

218. Whenever a book is moved out of its natural sequence in the classification, a reference should be made

SAND, GEORGE. See DUDEVANT.

Edge of pseudonym reference.

on the shelf to its absence, and to the place where it is to be found. In Fiction when, as is now frequently the practice in libraries, a pseudonymous book is shelved under the real name of the author, a flat block about the height of an octavo and one inch thick, bearing on its edge the pseudonym and the reference to the real name, should be inserted; as shown on the previous page. Where oversize books are placed at the end of the class or elsewhere on special quarto and folio shelves, a dummy book—a wooden block resembling the above—should be placed in the correct place in the octavo sequence, and should bear on its edge the class-mark, author, and the title of the book, and on the side the following legend:

“This book is too large for the ordinary shelves, and will be found in its order on the special shelves for Quartos and Folios at the end of the class.”

Various applications of this reference dummy have been explained by J. D. Stewart in *The Library World*, vol. ix, pages 208–11, 1906–7.

When these guides are provided the library may be assumed to be appropriately set out for public use.

The subject may be followed up in the *Manual of Classification* and elsewhere. The tendency is towards great simplicity in grading, the general guide to classes, being in bold, beautiful letters. The student who can examine guides in modern libraries, as at Sheffield, Leeds, and Hendon, will find it will repay him to do it.

219. READINGS.

SAVERS. *Manual of Classification*, Chapter XXI

SAVAGE. “Classification Guides and Indexes,” *Library World*, vol. viii, pp. 261–6, 1905–6.

STEWART. “Guiding an Open-Access Lending Library,” *Library World*, vol. ii, pp. 113–18, 1904–5.

— “Oversize Books,” *Library World*, vol. ix, pp. 208–11, 1906–7.

BROWN. *Manual of Library Economy*, Chapter XVII, edition 3, 1920.

(The student would do well to run through Chapters XV–XVI by way of revision.)

- HULME. "Classification in the Patent Office Library," *Library Assistant*, vol. iv, pp. 27-33, 1903-5.
- COUTTS. "Classification and Shelf Guiding," in Brown, and Others. *Open-Access Libraries*, Chapter V.
- BROWN. *Library Classification*, Chapter V.
- SAYERS. "Classification in Modern Life," in *The Library Assistant*, vol. xvii, pp. 8-16, 35-40.

220. QUESTIONS.

- (1) Draw a rough plan of an open-access library classified by the Subject system, showing the distribution of classes. Explain it.
- (2) Describe what class guides you would adopt in a classified library.
- (3) Why are shelf guides difficult of management and what would you suggest in place of them?
- (4) Describe all the methods known to you of guiding the individual book.
- (5) Define, with examples, "broken order."
- (6) What is meant by "parallel classification"? Describe its varieties.

CHAPTER XXI

BOOK-DISPLAY

221. A brief treatment of what is called "Book-Display" may fitly be included in this book, since what is meant by it can be done effectively and economically only in a classified library. The fact that there are the separations of stock and even of subjects which are explained in the previous chapter, has led some librarians to believe that shelf classification, except of the broadest sort, is inadvisable, and that for the full resources of the stock in any subject recourse must be had to a classified catalogue. Consider, only a portion of the stock of any library of size can be presented on open shelves; the amount of space required for gangways for readers going to them

would mean buildings larger than any now available or in prospect. James Duff Brown's statement that a classified open-shelf library is a sufficient exhibition of books—and book-display mainly means exhibition—is true enough, but it can be complete of small libraries only.

222. This book has made it clear that the normal method of a modern library is the adequately classified shelf. The older large libraries are not always classified adequately, and these hold the view that such classification is superfluous. One can sympathize with them. A great library, built up in hundreds of thousands of volumes before the introduction of modern classificatory systems, must necessarily hesitate about close classifying, as to undertake this would involve enormous expense, and might render obsolete all references in published and possibly widely circulated catalogues and other accounts of its stock. Such an inheritance is a misfortune which may absolve it from the enterprise; it is not a merit to be quoted by other librarians as an excuse to deprive readers of the more than proven advantages of orderly subject arrangement. So much it seems necessary to say to students who will encounter the claim that book-display may supersede classification.

223. Book-display is the showing of books prominently, out of their sequence in the classification; or, if it is preferred, the reclassifying of parts of the library to meet temporary needs. This is most desirable when a subject acquires a momentary prominence in the public mind, as at anniversaries and political crises, when broadcast references bring subjects into special notice, and when courses of lectures are to be held. Particularly can it be valuable in bringing to notice good books which may be neglected, especially in rescuing many from neglect in storerooms and stacks. Sometimes it is merely an assembling of a number of attractive books of various sorts; which may or may not be good, but are not brought together by subjects. This last "lucky dip" method of

display, as it has been called,¹ has small library value, although it has some; it is a calculated method for entrapping the unwary reader into reading something he would not read otherwise. A quotation from an article by J. Cranshaw² gives the modern definition of book-display:

"I do not mean that lone fitting attached to the end of a book stack labelled 'New Additions,' or that table carrying half a hundred books and a super-structure carrying a score or more book jackets. These attempts ignore the first principles of display, which are (1) a definite and specific subject heading attractively stated and artistically illustrated, and (2) a small selection of books, rarely more than twenty, arranged, not as a shelf of books, but as a modern bookseller would display them in his shop-window or on a fitting inside his shop."

This has been the practice of booksellers and of progressive libraries for the past forty years, and extravagant claims for the obvious uses of such methods are unnecessary. Where conditions are not favourable for much display, troughs of books placed on tables or available ledges, with appropriate captions above them, will yield good results, as will bright illustrations placed on screens with the books illustrated placed prominently near them. From such humble beginnings the possibilities of display where better accommodation exists are many, and may employ much of the book-selection knowledge and artistic skill of a library staff.

224. Book-display has to an extent modified library planning. Formerly the façade of a library was institutional and rarely to be differentiated from a bank or other public edifice; its purpose did not appear. At Wallasey, Ernest A. Savage experimented with shops as small branch libraries, dressing the windows gaily with attractive books, some opened at coloured illustrations, and

¹ James D. Stewart in the *Library Association Record*, Ser. 4, vol. i, p. 353,

1934.

² The Guff called Book-Display. *Library World*, vol. xxxvi, pp. 183-6. The title of this article is the reference to a disarrangement of book-display in an earlier article.

with suitable posters, much in the manner of the live book-shop. Some librarians intent on publicity have rented empty shops temporarily and have turned their windows into advertising exhibitions of the stock of the public library proper in the same manner, except that at Dr. Savage's shops actually library work was done. The idea was adapted when in new library buildings show windows on the most prominent part of the exterior were incorporated in the design, as the small windows projecting from the entrance porch of some of the Leeds branch libraries. The principle that a library building should show at once that it is a place of books is now generally accepted. Inside the library, the former method of crowding as many book cases into a room as it would contain has given way again to the old method of the alcove with tables in it on which books can be displayed. Bookcases are confined to wall surfaces in others, and the centre spaces given to tables, display stands and chairs so that readers can see or consult books easily and comfortably. In fact, the modern library relies more on the stack to hold the bulk of its stock and uses the public rooms for the exploiting of books. Special display furniture, consisting of a board to hold illustrations and lists, with a bookshelf beneath it, or some variation of this plan, is now an accepted feature of libraries. Other ideas of book display involve the arrangement of books. Some librarians arrange fiction in children's libraries into fairy tales, historical stories, adventure yarns, school narratives and so on, and adult libraries into detective, psychological, social and other additional types, a method which saves the time of the reader who is reading in a groove, and tends to keep him in it! The exactly opposite effect is attempted in the ribbon arrangement of shelves, in which the three upper shelves of the bookcases are given to non-fiction and the three or four beneath them to fiction. The method can be applied other ways, of course, as alternating tiers of non-fiction with tiers of fiction. This at least makes the fiction reader aware of the

existence of other books; but it appears to be suitable only for a small library or for a children's library.

225. The art of book-display lies in being able to anticipate need or taste and to provide catchy pictures, book-jackets, and captions in connection, as Mr. Cranshaw says, with a few carefully chosen books. The use of colour in the matter is essential. Headings like "the ten best books on—," "Books the librarian has read and recommends," "the Royal Wedding," "Are you Learning a Language?," "Books that have Moved the World," etc., the choice is without limit—are produced prominently and brilliantly and placed above the stand, trough, or shelves where the display is made. Coloured inks and special poster pens¹ can be employed, and at Leeds letters are (or were) cut out of coloured paper. All this is useful work and ensures that "he who runs may read" something worthy; but it can be carried too far and be a greater tax upon staff time than its admitted results justify. If carried too far, it would break the library up into any number of disparate subjects inconvenient for those who have passed beyond the amateur stage in reading. It is merely an attractive auxiliary. The matter is summed up admirably by James D. Stewart: "Kept within reasonable limits, the segregation and display of selected groups of books has extremely good results, and I imagine that it is now employed in most progressive libraries. It is directed chiefly to the casual reader who does not mind very much what he reads, but who likes to find something pleasing with the minimum of trouble. If carried to extremes, however, it is the negation of librarianship. There is little use in classification, cataloguing, or in any of the methods of systematic library arrangement, if too many of the books are taken from their ordered places for the purpose of being exhibited in bins, display racks, or ranged on occasional tables."²

¹ There is a poster fountain pen, simple to use, made by Lunzer and Miller, 21, Panton Street, S.W.1.

² *Library Association Record*, Ser. 4, vol. i, p. 353, 1934.

226. READINGS.

Useful ideas can be obtained from the following:

BRISCOE. *Library Advertising*. 1927.

McCOLVIN. *Library Extension Work and Publicity*. 1927.

HILTON SMITH. "Aids to Readers," in Doubleday's *Primer of Librarianship*. 1931. See also his article, "Aids to Public Library Readers," in *The Library Association Record*, vol. viii (new ser.), pp. 263-74, 1930.

SAVAGE. *Manual of Library Classification and Book Display*, 1946.

SAYERS. *Manual of Classification*, Chapter XXV.

American methods may be obtained from:

WARD. *Publicity for Public Libraries*. 1924. 60 pages are devoted to posters and displays.

WHEELER. *The Library and the Community*. 1924.

FLEXNER. *Circulation Work*. 1927.

And many articles appear in *The Library Journal* and other American periodicals

See also some brief articles in *The Library World*, vol. xxxvi, 1933, as follows, which give a fairly full, as they are also the most modern, account of book display:

Editorial, pp. 177-8.

Book-Display: Theory; in the Children's Library; the Reference Library, pp. 179-83.

CRANSHAW. The Guff Called Book-Display, pp. 183-6.

SAYERS. Memories of Book-Display, pp. 203-5.

HAMPSON. Book-Display: Practical Aspects, pp. 205-7.

227. QUESTIONS.

(1) What are the purposes of book-display?

(2) Describe any method of book-display which you have seen.

(3) What effects has book-display had upon library planning?

(4) If books are removed from their classification sequence in order to display them elsewhere, how would you indicate their absence from their permanent place?

(5) Suggest six subjects for book-display (other than those suggested in this book) with suitable captions and other means of drawing notice to them.

(6) Describe the advantage of this method of attracting readers.

PART IV

A SHORT COURSE IN PRACTICAL CLASSIFICATION

WITH SPECIAL REFERENCE TO
DECIMAL CLASSIFICATION

CHAPTER XXII

PRELIMINARY

228. The following pages consist of hints on the methods of approaching a classification scheme, the difficulties most frequently encountered in applying it and how to overcome them, and selected book-titles which illustrate these things. They are designed to provide the regular "drill" in the work of classifying which should accompany the reading prescribed in Parts I-III of this book. The plan is to illustrate in this chapter the more general rules of classifying in a series of examples to be classified by the Dewey Decimal—or any other—classification. We then proceed in Chapters XXI-XXXII to a more extended and detailed study, using the Decimal Classification, again class by class; with two Test Examination papers on the usual lines. In this detailed study the plan has been to give one lesson to each of the main classes of the Decimal Scheme, except Literature and Philology which are combined in one, and History which is divided into two, and to study its scope and difficulties *seriatim*. Dewey has been chosen because it is the most used and most accessible scheme, and experienced classifiers hold that a librarian who can classify satisfactorily by it will find no great difficulty in applying other schemes. Moreover, Dewey is a valuable, practical scheme, a point which it is necessary to stress, because students are apt to deal exclusively in their examination answers with faults. That there are many faults we have shown and shall show, but the virtues of the scheme are even more remarkable.

229. Difficulties in the course arise from the fact that Practical Classification is necessarily a matter of knowledge and practice. Clearly you cannot place a book correctly unless you know what it is about, and much ill classifying has been done by people whose knowledge is inadequate for the work. Further, it can be learned only by the actual handling of books. The examples are drawn from actual books, with exceptions clearly indicated, and if you are able to examine them at some library as you undertake their working, you will be greatly benefited. It should be possible to assign definite reasons for every process undertaken; every decision must be justified in your mind; and every difficulty should be resolved as clearly as possible. Every question and example set has a purpose, and difficult ones should not be passed over.

230. The indispensable book for the course is *The Decimal Classification* (eleventh or later editions)¹ and, as the readings show, constant reference is made to Merrill's *Code for Classifiers* (A.L.A., Chicago, 1939). Comparative methods are used only occasionally, but references are usually to the best known schemes already described in this book.

It has been thought useful in the systematic course on Dewey to include a few apposite questions and one general test question in theory in each lesson. As theoretical and practical work are required in examinations, the necessity for the revising of theoretical studies is clear.

231. The approach to a classification scheme must always be through the main tables in this order:

(a) Read the first outline, and consider the order of knowledge in the compiler's mind; and try to discover the characteristic chosen for the basis of the arrangement.

(b) Turn to the second outline, and endeavour to commit it to memory. This can be done gradually—learn the main headings first.

(c) Now read the Introduction.

(d) In classing a book, use the main tables and avoid

¹ The 14th edition is dated 1942.

the use of the index until you have determined where you will place it. At that point the index may furnish help and be a check on your placing.

231.1. Commence the process of classing by asking yourself the following questions:

(a) What sort of a book is it? Is it upon a subject, or series of subjects? Or, is it a book significant for the form in which it is written and not for its subject, that is to say a poem, drama, literary essay, or any other member of a "form class"?

(b) What is the form in which the book which is on a subject or subjects is presented?

You will see at this stage that you have, as it were, classed the book mentally. You then turn to the main tables and consider:

(a) What is the main heading embracing the subject?

(b) What is the division?

(c) What is the specific place?

Whenever you have doubts as to the accuracy of your placing, read from the specific places chosen back to the main heading under which it comes, because, if the subject of your book is embraced by it, you are probably right. This procedure will protect you if you are using the index, especially the relative index of Dewey, where a subject may appear half a dozen times and each in a different relation.

Having reached the specific subject, inquire:

(a) Is the book concerned with its subject in relation to a particular place or time (or both)?

(b) Has it a particular mode of treatment; i.e. is it on the theory, philosophy or history of the subject?

(c) Is it in a particular form, such as a dictionary, a periodical, a set of essays, or the proceedings of a society, devoted to the subject?

(d) Is it an introduction, outline, manual or text-book? Or a book on how to teach the subject and not on the

subject itself, i.e. on the teaching of Geology as distinct from a treatise of Geology?

(e) The size of the book.

We have seen, in our chapter on notation and other references to it, that all modern classifications provide sub-divisions of these "forms" as they are somewhat loosely called. There are tables of them in the D.C.; for example, Table I, following the index, gives in an expanded form, the common sub-divisions which appear at the head of each main class and with modifications are applicable to every subject. There are other tables for points of view, geographical tables, linguistic tables and so on, which enable us to add to the *number for the specific subject* other numbers by which all or some of the features we had sought can be combined in one linear expression, the number which most closely expresses the subject and method of the individual book. Dewey was the first to make a classification of which this number-building was an important process and all later schemes of the sort known as synthetic or self-perpetuating, some of which translate the whole character of a book into notation very perfectly, derive from his early conception.

In a general library we give the number for the specific subject, plus the most useful form number; thus an *Introduction to the True Spiders of New Hampshire* is a work in Zoology, which is a division of Biology, and is a sub-division of the Invertebrates, a sub-division of which in turn is Arachnidae (Spiders) and this again in turn produces the specific head the Araneida (True Spiders). But our work is focused on such spiders in New Hampshire and is in the form of a Manual. Using the subject number plus the geographical and form numbers from the D.C. we abstract the notation required thus:

590-599	Zoology.
592-595.7	Invertebrates.
595.4	Arachnidae.
595.44	Araneida.

Geographical sub-division is introduced from the common sub-divisions table 09 plus the number for New Hampshire from the tables 940-99 of the main classification, in which 97 is the United States, 974 the N.E. States, and 974.2 New Hampshire. The 09 of the common sub-divisions supplies the initial 9 in the geographical sub-division number; and we get, therefore, 595.4409742 as the number for True Spiders in New Hampshire. Our book, however, is a manual, the number for which we take from the common sub-divisions again, and thus reach a full notation for our book in

595.440974202.

Permutations of numbers can be used in this manner for any of the subjects and points of view that have been indicated.

Consider further if the book has more than one subject, is composite, or to use newer phrases polytopical or polyphased; for example, *Mathematics for Engineers*. Such books must be referred from the number of the second subject to that under which the book is classed and shelved. A subject in relation to another subject is provided for by such cross-references, made this way:

620+510 Engineering and Mathematics.

The usual methods have already been described in Chapter XVIII which of course should be read before the exercises are undertaken.

231.2. This study cannot ignore the aid the number-building which Ranganathan's method of "translation into classificatory language," as he calls giving a notation to a subject, affords us. In Appendix I, which supplements the chapter on the Colon scheme, A. J. Wells sets out clearly how this works. The student is recommended to apply for himself the stage by stage building up of numbers there given in connexion with the exercises which follow.

232. A SHORT SERIES OF EXERCISES ON GENERAL RULES.

Classify to "Three Figures" of Dewey.

1. THE ENCYCLOPÆDIA BRITANNICA.
2. SEELEY, J. R. *Ecce Homo*.
3. SMITH, ADAM. *The Wealth of Nations*.
4. SMITH, SIR WILLIAM. *Principia Latina*.
5. DARWIN, CHARLES. *The Descent of Man*.
6. ELBOURNE, E. T. *Factory Administration and Accounts*.
7. RUSKIN, JOHN. *Modern Painters*.
8. SHAKESPEARE'S PLAYS.
9. GIBBON, EDWARD. *Decline and Fall of the Roman Empire*.
10. STANLEY, H. M. *In Darkest Africa*.

II

(In this and the following exercises classify fully by the Dewey system, using all available tables.)

AXIOM: *Local place takes precedence over national place or date in the arrangement of History.*

1. LEANING, F. E. *A History of the Manor or Hundred of Copthorne lying in the Parish of Banstead, Surrey*.
2. BELL, W. G. *The Great Plague in London in 1665*.
3. GODLEY, A. D. *Oxford in the Eighteenth Century*.
4. STEVENSON, WILLIAM. *Bygone Nottinghamshire*.
5. WINBOLT, S. E. *Roman Folkestone*.
6. BELLOC, HILAIRE. *Paris: a History*.
7. BLUNT, REGINALD. *The Lure of Old Chelsea*.
8. EUSTACE, G. W. *Arundel: Borough and Castle: a History*.
9. STANFORD, CHARLES THOMAS. *Sussex in the Great Civil War and the Interregnum, 1642-60*.
10. MELVILLE, LEWIS. *Society in Tunbridge Wells in the Eighteenth Century and After*.

III

RULE. *Seek the most minute place in the classification scheme into which the book will go. Having found that, read the scheme upwards from the number chosen to the main division and class, in order to assure yourself that the subject is within the meaning of the main class.*

1. FROUDE, J. A. *History of England, 1527-88*.

2. HALL, HUBERT. *Society in the Elizabethan Age.*
[There are obviously two places in Dewey where this might go (see Sociology and History). Consider where it would be placed most *usefully*—a principle which governs all classifying.]
3. ORDISH, T. F. *Shakespeare's London: a study of London in the Reign of Elizabeth.*
[Three possible places. What are they? Only one is really desirable in a general library. Which?]
4. BURNET, GILBERT. *The History of My Own Time, 1660-1713.*
5. CLARENDON, EDWARD, EARL OF. *The History of the Rebellion and Civil Wars in England begun in 1641.*
6. ASHTON, JOHN. *Social Life in the Reign of Queen Anne.*
[Reasoning as for No. 2.]
7. LAW, ERNEST. *A Short History of Hampton Court in Tudor and Stuart Times.*
[Three possible places. What rule governs the choice?]
8. WATT, FRANCIS. *Canterbury Pilgrims and Their Ways.*
[The martyrdom and miracles of the Becket shrine; the pilgrims and their routes from London and Winchester; and the literature and other matters connected with the pilgrimages.
Several places are possible, and a choice is necessary.]
9. TREVELYAN, SIR G. O. *The American Revolution.*
10. SAWYER, VAUGHAN. *Grant's Campaign in Virginia.*
[At least two places are possible.]

IV

RULE. *Classify the book first according to its subject, and then by the form in which that subject is presented.*

This is an exercise to bring out the use of "Table 2—Form Divisions," which you will find after the Decimal Classification Relative Index (14th ed.)—or of the same numbers when they appear in the Main Tables.

1. ORNSTIEN, ALFRED (ED.). *The Property Companies' Year Book: Essential Data of Public and Private Property Companies Registered in the United Kingdom.*

[The subject placing will depend upon the answer to the question which governs all classifying—"to whom will the book be most useful?"]

2. CROCKFORD'S CLERICAL DIRECTORY.
[A sort of "Who's Who," of the Church of England clergy in dictionary form, giving particulars of education, appointments held, stipends, etc.]
3. ACADEMY ARCHITECTURE AND ARCHITECTURAL REVIEW, vol. lx.
4. CLASSICAL ASSOCIATION PROCEEDINGS, vol. xxv.
[Note the difference in form between this and 3.]
5. ISHAM, SAMUEL. *The History of American Painting.*
6. ELLIS, T. S. (ED.). *Black's Gardening Dictionary.*
[Encyclopædia of all garden processes, flowers, vegetables, lawns, greenhouses, etc.]
7. JESPERSEN, OTTO. *How to Teach a Foreign Language.*
[Two possible places. How should this be placed in a general library? What other library might prefer the alternative number?]
8. JESPERSEN, OTTO. *The Philosophy of Grammar.*
9. POULTON, E. B. *Essays on Evolution*, 1889-1907.
[Not a history in the exact sense.]
10. GEIKIE, SIR ARCHIBALD. *Outlines of Field Geology.*

V

This exercise continues the rule: *Classify by topic and then by form.*

1. GEIKIE, SIR ARCHIBALD. *Landscape in History and Other Essays.*
[Half of the essays deal with scenery in its geological relations and its influence on human progress; others discuss the age of the earth, science in education, and Hugh Miller and Darwin. Consider the balance of interest here.]
2. HOUSTON, R. A. *An Introduction to Mathematical Physics.*
3. THORPE, C. D. *The Mind of Keats.*
[The poetical mind and thought life of Keats.]
4. DIGEON, AURELIEN. *The Novels of Fielding.*
5. TOYNBEE, PAGET. *In the Footsteps of Dante.*
6. PARSONS, SIR J. H. *Introduction to the Theory of Perception.*
7. ALLEN, J. W. *The Place of History in Education.*
8. HANNAN, W. S. *Notes on the Church Cantatas of J. S. Bach.*
9. BOUCHNER, G. J. *Women in Journalism: a Guide to and Manual of Women's Work for Newspapers and Magazines.*
10. MATTHEWS, F. S. *Field Book of American Wild Flowers.*

VI

The exercise is on Rule 6: *Place a book in the most specific heading that will contain it.*

1. TERMAN, L. M. *The Measurement of Intelligence: an explanation of and a guide for the use of the Stanford Revision and Extension of the Binet-Simon Intelligence Scale.*
2. STAINER, JOHN. *The Music of the Bible.*
[Here, again, is a clash of two possible headings. The work is on music in the sense of music as an art, and is the work of a well-known church composer. Will the book make greater appeal to the musician than to the Bible student?]
3. FRIEND, J. N. *The Chemistry of Combustion.*
["By combustion it is now usual to imply some form of chemical change accompanied by the evolution of both heat and light."—Sec. I.]
4. ANDRADE, E. N. DA. *The Structure of the Atom.*
[Author is a well-known physicist.]
5. ABRAHAM, R. M. *Surveying Instruments: their design, construction, testing, and adjustment.*
6. WRIGHT, THOMAS. *The Romance of the Shoe.*
[The history of shoemaking in all ages and especially in England and Scotland.]
7. SAVAGE, W. G. *Rural Housing.*
[Requirements of new cottages in rural areas, housing and health, etc.]
8. SIDGWICK, N. V. *The Electronic Theory of Valency.*
9. DICKENSON, G. L. *The International Anarchy, 1904-14.*
[The title is not fully descriptive. The work is a history of the European situation mainly in the ten years.]
10. CHART, D. A. *The Story of Dublin.*

VII

Exercise on Rule 7: *Avoid classifications which are in the nature of criticism: i.e. the place chosen must represent the author's intention or view of his subject matter, not any other opinion of it that the classifier may have formed.*

1. MEAD, G. R. S. *Did Jesus Christ Live 100 B.C.?*

2. BRANDES, G. *Jesus Christ, a Myth.*
[Holds that Jesus was a legendary figure, largely created by the mind of St. Paul.]
3. LODGE, SIR OLIVER. *Why I Believe in Personal Immortality.*
[His conviction that it is a demonstrated fact.]
4. LESLIE, SHANE. *The Skull of Swift: an Extempore Exhumation.*
[Thesis: that the author of *Gulliver's Travels* was a man without a soul.]
5. MARGESON, MAUD. *The Brontës and Their Stars: Illustrated with Astrological Charts.*
6. BRAYBROOKE, PATRICK. *Philosophies in Modern Fiction.*
[Sketches of twelve contemporary novelists.]
7. INGE, W. R. (Dean). *The New Twilight of the Gods.*
[Do the conclusions of the natural sciences about the ultimate fate of our planet allow us any longer to cherish unbounded hopes for the future?]
8. NEWSHOLME, H. P. *Evolution and Redemption.*
[A physician's conclusions that the non-physical as well as the physical nature must be taken into account in man's health, and that his physical nature is intended to express the spiritual forces underlying it.]
9. BOUSFIELD, PAUL. *The Omnipotent Self: a Study in Self-Deception and Self-Cure.*
10. ARON, R., and DANDIEU, A. *Le Cancer Américain.*
["The American cancer is the supremacy of industry and finance on the entire life of the age."]

VIII

Exercise on Rule 3. *When two headings clash make a decision as to which is to prevail.*

1. CROCE, BENEDETTO. *Ariosto, Shakespeare, and Corneille.*
[Three essays. That on Shakespeare occupies 217 of the 440 pages of the book. Consider whether this or one of the other subjects would be most useful.]
2. HUXLEY, T. H. *Science and Hebrew Tradition.*
[Would a reader expect to find this under Science or Hebraism?]
3. COULTON, G. G. *Art and the Reformation.*
[Would this illustrate Art rather than the Reformation?]

4. JEVONS, W. S. *Principles of Science: a treatise on Logic and Scientific Method.*
5. DRUMMOND, HENRY. *Natural Law in the Spiritual World.*
[“Can we identify the Natural Laws, or any one of them, in the Spiritual sphere?”]
6. WOODCRAFT FOR BOY SCOUTS.
7. MUMMERY, A. F. *My Climbs in the Alps and Caucasus.*
[Mummery was one of the greatest Alpinists of modern times. Choice of climbing, Alps and of Caucasus.]
8. JAMES, WILLIAM. *Pragmatism.*
[The pragmatic method settles metaphysical disputes otherwise interminable. It tries “to interpret each notion by tracing its respective practical consequences.”]
9. JEANS, J. H. *Astronomy and Cosmogony.*
[“The close relation between cosmogony and the physical state of astronomical matter.” Cosmogony studies the changes which the play of natural forces must inevitably produce in the objects discovered by the astronomer.]
10. PAPILLON, T. L. *A Manual of Comparative Philology as applied to the Illustration of Greek and Latin Inflections.*
[Comparative Philology? Greek? Latin?]

IX

RULE 1. *Classify by subject, then by form, except in the form classes where form is paramount.*

1. QUINCY, JOHN. *A New Medicinal Dictionary, explaining the Different Terms used in the Profession.*
2. SELLARS, J. C. *Chemistianity: a Poem on Each Known Chemical Element, arranged for Memory Reading.*
3. THE BRITISH DRAMA: *a collection of the most Esteemed Tragedies, Comedies, Operas and Farces in the English Language.*
4. DEASE, E. F. *A Complete History of the Westmeath Hunt from its Foundation.*
[With descriptions of Country, accounts of Runs, and some interesting bits of County History.]
5. HART, GEORGE. *The Violin: its famous Makers and Their Imitators.*
6. PHILLIPS, C. E. S. *Bibliography of X-ray Literature and Research; with an Historical Retrospect.*
7. SOWERBY, G. B. *A Conchological Manual.*

8. MARSHALL, JULIAN. *Tennis Cuts and Quips in Prose and Verse.*
9. PALGRAVE, F. T. *A Golden Treasury of English Songs and Lyrics.*
10. JACKSON, A. M., and ARMSTRONG. *Teaching in Schools of Nursing.*

X

1. COLLET, L. W. *The Structure of the Alps.* 1927.
[“The geological history and tectonic problem of that fascinating region.”]
2. JACKSON, G. G. *Railways of Great Britain.*
3. BURGE, C. G. (ED.) *The Air Annual of the British Empire,* 1934-35.
4. GARDNER, E. G. *The Arthurian Legend in Italian Literature.*
5. CROWTHER, J. G. *Science in Soviet Russia.*
[An account of a month's tour of laboratories, workshops, etc.]
6. FLEMING, R. M. *Ancient Tales from Many Lands.*
[Folk tales from Japan, Assyria, New Zealand, West Africa, North America, Babylonia, etc.]
7. BORROW, GEORGE. *The Gypsies of Spain.* 1841.
8. HINGSTON, Major R. W. G. *A Naturalist in the Guiana Forest.* 1932.
9. ADAM, H. L. *The Indian Criminal.*
[Study of crime and its treatment in India, Penang, Malacca, etc.]
10. LE BLOND, Mrs. AUBREY. *Old Gardens of Italy.*

CHAPTER XXIII

III.—CLASSIFICATION EXERCISES CLASS BY CLASS ON
THE DECIMAL CLASSIFICATION

I.—000 GENERALIA

OUTLINE

- 000 General Works.
- 010 Bibliography.
- 020 Library Economy.
- 030 General Cyclopædias.
- 040 General Collected Essays.
- 050 General Periodicals.
- 060 General Societies, Museums.
- 070 Journalism, Newspapers.
- 080 Polygraphy, Special Libraries.
- 090 Book Rarities.

233. The theory underlying the Generalia class is that it is to accommodate works of so composite or general a character that they will not go into any subsequent subject class in the scheme; thus 010, 030-070 are all headings which are, or might be, prefaced by the word "general." Library Economy is justified here on the ground that it covers the manipulation of every kind of book; and Book Rarities are books in which the subject interest is subordinated to other considerations, and therefore their special interest, which may be type, paper, illustration, binding, or all of these, would be lost if they were classified by subject. Special Libraries is a heading for collections of books, which may indeed be classed elsewhere, but which it is desired to separate from the other parts of the library, because they have been received by gift, perhaps on condition that they are kept as separate collections, or for some other reason. Such collections may be divided by the main classification tables; thus a book in a special gift collection entitled *Roman Antiquities* might be marked 08—"Special Library of," plus 937—"Roman History";

and the complete number therefore appear as 089.37.000 is a number that is rarely used, because it is difficult to envisage a book "on everything" which is not an encyclopædia or dictionary, and so classed at 030-039. The only other heading which causes trouble is *General Collections*, which is rarely used in modern libraries but is useful in older ones. It is really (as Dewey shows in his third summary) *General Collected Essays*; and as the name of the heading implies, it takes essays of so miscellaneous a character that they will not go without strain at any subject or at the form "essays" in 814, 824, 834, etc.; i.e. bound pamphlets, essays, addresses, scrapbooks, etc. Thus, a volume entitled *General Pamphlets in French* would be marked 044.

234. One of the unsatisfactory features of this class is the confusion and inevitable separations arising from the possible overlapping of 010 Bibliography, 090 Book rarities and 655.1 the "History of Printing."

The simplest use of 010 is to place here the theory of general bibliography—which is the story of the parts and production of books in all forms—and the number should take the following sort of books:

- 010 Esdaile. Manual of Bibliography.
- 010 McKerrow. Introduction to Bibliography.
- 010.9 Davenport. The Book: its history and development.

The history of the book generally, including its printing, usually goes under 010.9, but Dewey has complicated this matter by providing for the history of printing alone at 655.1. If 655.1 is used it should be confined to printing history and not be used for the book generally.

Care should be exercised in applying 011-019. The important number is 016, where all special bibliographies and catalogues may be classed, the whole classification being used for sub-division; thus:

- 016 Bibliography of Special Subjects.
- 016.22 Bible.
- 016.34 Law.
- 016.575 Evolution.
- 016.9421 London.

It is alternative to the rule "the bibliography of a subject goes with the subject," as some librarians prefer to keep all bibliography together. The alternative not chosen should be referred from in the catalogue.

090 is for books and features of books which may be called "museum specimens," i.e., are of less importance from a subject point of view than from that of their special historical or other curiosity character; and also for books which have special qualities which over-ride subject, as prohibited books, etc. Books about these books go here, too.

235. Note these further points:

(1) It is best to ignore the distinction between catalogues and bibliographies made under 011; treat both as bibliographies.

(2) Bibliographies of authors do not go at 012, but in Literature with their works.

(3) Calendars of State papers, etc., go with the subject indexed, not at bibliography.

(4) The distinction between a general periodical or magazine at 050 and a general newspaper at 070 is not very clear. Classify as newspapers daily and weekly sheets which call themselves or are obviously such. The two headings would be consecutive in a really logical classification.

(5) 095 may be used not only for books about rare book-binding, but for actual specimens of such work. This, of course, removes them from their internal subject place. In some cases such books may be preferred at 686, the practical art, but 095 is probably better. Refer from the number *not* chosen and from the subject of the book.

The expansion of 020 in the 1933 and later editions makes a good scheme for the arrangement of a librarian's files of administrative letters and papers, as well as for his books on the subject. It may be compared with the special and separate schemes by Jast and Stewart described briefly in paragraphs 170-1.

236. READINGS.

DEWEY. *Decimal Classification*, pp. 6-19.

Also first three summaries and Main Tables to 099.

Learn 000-090 of Second Summary.

MERRILL. *Code for Classifiers*, pp. 20-8.

237. Questions.

(1) Place a book under each of the seven divisions of General Works; classify the same books by the Brown Subject scheme.

(2) What does Brown omit from his Generalia—when compared with Dewey's General Works—and where does he place the subjects omitted? Can you account for these changes?

(3) Classify the following books fully, using the Form divisions in Table 2 in the Dewey Classification when advisable. Give alternatives where necessary:

1. BURTON. *The Book Hunter*.
2. *Enquire Within Upon Everything*.
3. NELSON'S *Encyclopædia*.
4. WARNER. *Reference Library Methods*.
5. *Encyclopædia Britannica*.
6. TERMAN AND LIMA. *Children's Reading: a Guide for Parents and Teachers*.
7. RAWLINGS. *The British Museum Library*.
8. RICKMAN. *Index Psycho-Analyticus*, 1893-1926.
9. GROSS. *Bibliography of Municipal History*.
10. BAKER. *Guide to Historical Fiction*.
11. *Book Auction Records*.
12. WINTERICH. *Primer of Book Collecting*.
13. SALMON. *The Newspaper and Authority*.
14. POLLARD. *Early Illustrated Books*.
15. SPELMAN. *History of Punch*.
16. *The Spectator* (the weekly).
17. MEYER. *Check List of Literature on the European War*.
18. JENKINSON. *Archive Administration*.
19. *The Daily Mail*.
20. BOUGAN, JOEL, AND STOR. *Readers' Guide to Periodical Literature*.

In all exercises classify after examination of the actual books whenever possible.

(4) *Test in Theory.* Answer the following question in not more than forty minutes without reference to your textbooks:

"State briefly, with any explanations you are able to offer, the fundamental logical rules of classification."

CHAPTER XXIV

II.—100 PHILOSOPHY

OUTLINE

100 General.	150 Psychology.
110 Metaphysics.	160 Logic, Dialectics.
120 Special Metaphysical Topics.	170 Ethics.
130 Mind and Body.	180 Ancient Philosophers.
140 Philosophic Systems.	190 Modern Philosophers.

238. This class covers first causes, the relation of the mind to the body, the reason and its material and methods in psychology and logic, the systems of philosophy, ethics, and the writings of the ancient and modern philosophers. It is a class in which the divisions are not coordinated, and such separations as those of mind and body from psychology, and philosophic systems from ancient and modern philosophers are unnecessary and perplexing.

239. One of our main difficulties rises from this second separation. What is the distinction between philosophical systems and ancient and modern philosophers? No one really knows; but we had better assume that philosophic systems is for works on systems complete or incomplete without special reference to their originators; while at 180-190 we put the actual works of recognized philosophers and criticisms and other accounts of them. Even this will present difficulties as cross-division between

the two places is inevitable. The note "the heads of 180-199 are for discussions of the systems of these men and for their philosophic works not clearly belonging elsewhere, but not for *all* their works" does not lessen the difficulty. Follow these rules:

(a) Put under 180-190 collected works of philosophers and all other works except monographs on special subjects; i.e. Mill's *Collected Works* goes at 192.7; but his *Logic* at 160, and his *Political Economy* at 330.

Under each of the headings 180-190 the arrangement is chronological apparently, but breaks down when eight philosophers of each country have been named, the rest being lumped together as "other philosophical writers." It is best to ignore this last miscellaneous place and to class all chronologically at the nearest date that will take them. The fault here referred to occurs most gravely, and often ridiculously, throughout the system. Put at 180-190 all accounts of and criticisms of philosophers, excepting those confined to the monographs on special subjects.

(b) Be careful not to confuse 109 with 180-190. Remember that 109 can only take general works such as Lewes's *History of Philosophy*, and not such as Zeller's *History of Greek Philosophy*.

(c) Do not confuse the topics in 110-120 with the Christian view of them in 230-260. For example, a book dealing in a non-theological manner with immortality, as Delanne's *Evidence for a Future Life*, is best in 128, but Farrar's *Eternal Hope* is distinctly 237.

(d) A difficult heading is 130, Mind and Body. It is usual to collect all phases of the mind—physiology, anatomy, etc., as well as the phenomena upon which the mind works (except those topics which are embraced by 150, Mental Faculties) under 130. But where the question is one of disease, involving therapeutics, surgery, etc., the works should go under 600 (with reference in the catalogue from 131-132). A book on *Suggestion in Brain*

Trouble is 131, a book on *Trepanning to Cure Paralysis* is 617.51.

(e) Psychology is sometimes overloaded by unskilled classifiers, who confuse it with applications of psychology. There is, of course, a psychology of most subjects, and this should class with the subjects. In the 13th edition of the Decimal Classification there has been added at 159.9 a most elaborate alternative scheme for psychology, under which, at 159.98, one could arrange the psychology of everything; i.e., of education 159.9837, of medicine 159.9861, etc.; but even there a note suggests that "applications to special subjects" are, in general practice, best classed with those subjects.

(The remarks on the building of a special library on psychology and psychological applications on the Brussels Institute plan are interesting, but should not be confused with Dewey itself.) Thus *The Psychology of Advertising* goes with Advertising at 659.1, *The Psychology of Art* under Art, and so on, or the alternative scheme just mentioned may be applied, but only, we suggest, in large collections.

(f) There are a large number of cross-references from 170, Ethics, to be considered. Questions of State Ethics, for example, must not be confused with Social Science. Ethics must always be regarded as the treatment of subjects "with a view to ascertaining their justice and righteousness in the control of conduct."

240. The classification of books on Philosophy demands imperatively a knowledge of the meaning of the terms used in the schedules. Therefore look up carefully any words you do not understand in Baldwin's *Dictionary of Philosophy* or Murray's *Oxford English Dictionary*. Be sure you get the right meaning of the terms, which can usually be done by reading the classification scheme from the terms to the main headings in which they appear, as I have already recommended.

241. READINGS.

DEWEY. *Decimal Classification*, pp. 19-31.

The more valuable part is p. 25 *et seq.* The remarks under "assigning class numbers" are vital to an understanding of the system. Assimilate them thoroughly.

Read Main Tables 100-99, paying attention to the notes.

Learn 100-90 of the Second Summary.

MERRILL. *Code for Classifiers*, pp. 28-31.

PURNELL. *The Development of Notation in Classification*. In *The Library Assistant*, vol. viii, pp. 25-33, 44-50.

A very helpful paper on notation variations.

242. QUESTIONS.

(1) What does Dewey mean by the phrase "divide as 940-999" when applied to the subject classes of his scheme? And how is a similar result obtained in the Subject Classification?

(2) Classify by Dewey:

1. COMTE. *Collected Works*.
2. COMTE. *Philosophy of the Sciences*.
3. CROCE. *Logic*.
4. HEGEL. *The Phenomenology of the Mind*.
5. KEARY. *The Pursuit of Reason*.
6. MITCHELL. *Laughter, Dreaming and Blushing*.
7. STOUT. *Manual of Psychology*.
8. LE BON. *Psychology of Revolution*.
9. MERZ. *History of European Thought in the Nineteenth Century*.
10. BETHOLET. *Transmigration of Souls*.
11. HART. *Psychology of Insanity*.
12. DOYLE. *History of Spiritualism*.
13. JONES. *Idealism as a Practical Creed*.
14. LARGE. *History of Materialism*.
15. SULLY. *Essay on Laughter*.
16. KANT. *Perpetual Peace*.
17. PEREIRA. *Intemperance*.
18. LINDSAY. *The Philosophy of Bergson*.
19. JENNINGS. *The Confucian Analects*.

(3) Classify the following imaginary titles, giving in the fewest possible words the subject by which you classify:

The Brain as an Organ of Mind.
The Iniquity of War.
The Gothenburg Licensing System.
The Trade of Brewing.
Temperance Reciter.
Proceedings of the Social Purity League.
The Nature of Being.
Fallacies in Thought.
Mental Medicine and Healing.
The Aesthetics of Painting and Music.
The Journal of the Psychic Research Society.

(4) *Test in Theory.* Answer the following questions in not more than forty minutes without reference to your text-books.
 "Terms have an invariable meaning in classification."
 "The use of two characteristics in classification would lead to cross-division." Explain these statements with examples.

CHAPTER XXV

III.—200 RELIGION

OUTLINE

- 200 General.
- 210 Natural Theology.
- 220 Bible.
- 230 Doctrine, Dogmatics, Theology.
- 240 Devotional, Practical.
- 250 Homiletic, Pastoral, Parochial.
- 260 Christian Church, Institutions and Work.
- 270 General History of Christian Church.
- 280 Christian Churches and Sects.
- 290 Non-Christian Religions.

243. Dewey's section 200 may be said to divide into four definite parts, as follows:

- 200-219 General Religion.
- 220-229 Scriptures, Hebrew and Christian.
- 230-289 The Christian Religion.
- 290-299 Non-Christian Religion, and Scriptures.

It is necessary to a proper understanding of the class to realize the scope of each of these divisions. The *Scriptures* is quite clear, but General Religion is often confused with the divisions more clearly confined to Christian Religion. For example, a work on Deism necessarily deals with God. If we have a book entitled *God in Nature*—the existence of a Supreme Being apart from Scriptural revelation or Christian tradition—it clearly belongs to Natural Theology, and is placed under 211, not under 231. A book which treats of the nature, attributes, or any other aspect of God from the teachings of the New Testament Scriptures or the Christian churches is 231 and not 211. A discussion of *Prayer in the World*, which describes the kinds and modes of prayer in all lands and religions, or, indeed in more than one religion, is 217 and not 249 or 264. Similarly, throughout the divisions 200–219 the subjects are not definitely Christian or non-Christian, but all-embracing. Be careful not to misunderstand the meaning of 201, which theorizes on religion as a whole, and (say) the theories proper to 239; or to confuse 209, which is the history of all religions, with 270, which is purely Christian, or with (say) the History of Judaism or Mohammedanism, which are 296 and 297 respectively.

244. The divisions, Bible, 220–229, are quite simple. The general principle must, however, be remembered that “works about works go with the works.” Hence a criticism of *Lamentations* is 224·3, and a collection of sermons on the Miracles is 226·7 and not 252. This is merely a re-affirmation of the axiom that “the subject is the thing.”

245. In placing books in 230–289 special attention should be paid to the main headings.

Doctrinal works class by topic irrespective of the sectarian standpoint of the author; for example, a book on Christology goes there if it is written by Catholic or Protestant, or Jew or Atheist. A “Sermon” is merely a form, and sermons on special religious topics go at the topic.

The headings in 240 must not be confused with 800. Books of Miscellany, 244, are merely fugitive religious ana, tracts, etc., not works primarily literary. Similarly, 245 is best confined to hymns and purely devotional verse. Our meaning is clearer when we say that Milton is a religious poet, but his works must go in 821; Herbert, Traherne, Crashaw, and Keble are best in 821.

246. The division 290 has been greatly expanded in recent editions of the classification. If it is remembered that the division cannot contain "Christian" matter but only "non-Christian" there will be few chances of error. Be careful to note how national divisions are made under 274-279, and ethnical divisions under 299. (The paragraphs under "Building Numbers"—page 31 of Dewey's *Introduction*¹—will make this clear.) Put everything relating to non-Christian religions under 290—liturgies, scriptures (where definitely known as such, but do not confuse them with 181, Oriental or other philosophies), ritual, history, and all other aspects. It is best to regard Mythology, 291-293, as only comprehending works involving deities. Other folk-tales—placed sometimes at 291—properly go at 398.

247. A general rule is: put philosophical topics common to all religions, i.e. the ultimate nature of good or evil, first causes, etc., under Philosophy, unless they have some direct theological creed, or criticism of such a creed, in them.

248. READINGS.

DEWEY. *Decimal Classification*, pp. 31-8.

Pay special attention to the adjustments permitted in Biography, Travel, etc.

Read Main Tables, 200-99.

The notes are to be studied carefully.

Learn 200-90 of Second Summary.

MERRILL. *Code for Classifiers*, pp. 31-9.

¹ Ed. 12 of the D.C.; p. 31 in Ed. 13.

249. QUESTIONS.

(1) Classify by Dewey:

1. SPURGEON. *Sermons on Our Lord's Parables.*
2. FLOWER. *An Approach to the Psychology of Religion.*
3. REDLICH. *An Introduction to Old Testament Study for Teachers and Students.*
4. STAINER. *The Music of the Bible: with some account of the development of modern musical instruments from ancient types.*
5. FARNELL. *The Attributes of God.*
6. LUDWIG. *The Son of Man.*
7. BRANDES. *Jesus: a Myth.*
8. HOYT. *Vital Elements of Preaching.*
9. ROBERTSON. *Short History of Free Thought.*
10. *Apocryphal Gospels.*
11. MEAD. *Did Jesus Live 100 B.C.?*
12. BUTLER. *Analogy of Religion.*
13. BASIL, Saint. *On the Holy Spirit.*
14. FISHER. *History of Christian Doctrine.*
15. NEWMAN. *The Arians of the Fourth Century.*
16. SIMPSON. *The Buddhist Praying Wheel.*
17. CHURCH. *Oxford Movement.*
18. NASSAU. *Shinto: the Way of the Gods.*
19. GAIRDNER. *Lollardy and the Reformation.*
20. SMITH. *Religion of the Semites.*

(2) Classify the following by Dewey:

1. RUSKIN. *Queen of the Air.*
2. PALMER. *Book of Praise (verse).*
3. PASCAL. *Provincial Letters.*
4. MARTINEAU. *Religious Life in England.*
5. FRAZER. *Golden Bough.*
6. COMBA. *History of the Waldenses of Italy.*

(3) Classify by Dewey:

Imaginary Titles.

1. *Encyclopædia of Occult Science.*
2. *Handbook of Logical Evidences of Witchcraft.*
3. *History of Alchemy.*
4. *Theories of Justice.*

Novels by Subject.

1. WELLS. *War of the Worlds.*
2. FARRAR. *Darkness and Dawn.*
3. ERCKMANN-CHATRIAN. *Waterloo.*
4. SCOTT. *Quentin Durward.*
5. DICKENS. *Nicholas Nickleby.*
6. WALLACE. *Ben Hur.*
7. BRONTË. *Villette.*
8. HAWTHORNE. *Scarlet Letter.*
9. THACKERAY. *Esmond.*
10. DOYLE. *Rodney Stone.*
11. STOWE. *Uncle Tom's Cabin.*
12. PEACOCK. *Maid Marian.*

(4) *Test in Theory.* Answer the following question in not more than forty minutes without reference to your text-books:
 "Define the peculiar differences between Philosophical and Bibliographical Classification, giving an example of each: and define the difference between natural and artificial characteristics as the basis of arrangement."

CHAPTER XXVI

IV.—300 SOCIAL SCIENCES

OUTLINE

300 Social Sciences, Sociology in General.	360 Welfare and Social Associations and Institutions.
310 Statistics.	370 Education.
320 Political Science.	380 Commerce.
330 Economics. Political Economy.	Communication.
340 Law.	390 Customs,
350 Administration.	Costumes, Folklore.

250. If we bear in mind the important principles laid down in Chapter XX, on the correct approach to a scheme, we shall find class 300, Sociology, in the Decimal System, simple. But it is easy to make mistakes if the

student classifies by specific subjects rather than by main divisions; and we must affirm again that the student must always trace the place at which he enters a book upwards to the main heading. If the book comes within the main heading it is probably correctly placed. For example, the use of the headings under 380, as Telegraph, Railroads, Waterways, Ocean and Air Transport, etc., for books on engineering or practical working (engine-driving, navigating, etc.) of these things often causes confusion, whereas a tracing back to the main class would make it quite clear that only works on the economic or political aspects of the questions may legitimately go here.

251. Sociology may be sufficiently defined as "men in community," or "man in relation to other men." Thus we have here the family, the school, the town, the state, and their various manifestations in Parliament, Law, the Military and Naval Services, Associations, Customs, and other forms necessary to or usually accompanying corporate life.

252. Division 310 sometimes causes trouble because the rule that "statistics of special subjects go with the subject" is often overlooked; i.e. the statistics of transport go at 385, not at 313—see the note in Edition 13 under 314-319. The heading is for the technique of statistics and for collections of statistics of population (which curiously has no place in the classification except as part of Statistics) and of a general character; for examples, *A Statistical Record of England* would be 413.2; but the statistics of cotton manufactures in England is 677.2.

If it were required to make a special collection of the statistics of all subjects, this could be done by dividing 313 by the classification, thus:

313.283 statistics of Anglican Church.

313.597 statistics of fishes.

313.626 statistics of canal engineering.

but this is not the usual practice. Should this alternative

be adopted references from the subjects, Anglican churches, fishes, canals, etc., would be necessary.

331. Labour and labourers is one of the most loaded and used of the classes. It deals with almost every economic relation, of worker to employer, and with the conditions under which work is done and the worker lives. (Incidentally, it is much favoured by Library Association examiners in the setting of questions.)

Be careful to note that headings 345 and 353 are purely American.

253. The remainder of the class calls for small comment. If it is remembered that the whole view of subjects throughout is political, economic, and administrative, and never operative in the mechanical or "useful" sense, it will help the student greatly.

Class emigration under the country left, and immigration under the country reached (i.e. add to the number for these topics from the table in 940-999).

Note that Foreign Relations, 327, is used plus the number for the country with whom the relations exist. Thus *The Relations of Britain with Spain* is 327.46, not 327.42.

Negotiations about a third country or place go under that place.

Diplomatic documents relating to wars go in History, not here.

254. Note that as a whole the class is akin or indeed preliminary to history. The heading 342, Constitutional Law and History, is an unfortunate one, as it involves a real separation from 900, History of subjects inextricably connected with it, and its use makes for cross-classification. Thus Maitland's *Constitutional History of England* is put, by correct "Dewey classing," at 342.2, but almost certainly would be more useful in 942.

350 should be studied carefully. It deals with the work of Governments at:

- | | |
|-----|---------------------|
| 351 | Central Government. |
| 353 | United States. |
| 354 | Other countries. |

but curiously interpolates

352 Local Government.

which after a set of general sub-divisions 001-009, is divided geographically, using a zero and then the number from the 42-99 table in the History class, thus:

Local Government in England.
" " in London.
" " in Germany.
etc.

Then follow a series of sub-divisions of special local government topics, i.e.:

- 1 Finances and local taxations, rates, etc.
- 2 Police.
- 3 Fire department.
- 4 Public health.
- 5-·7 Public buildings and works.
- 8 Licences: hack, huckster, entertainment.
- 9 Other topics.

for which no local sub-division is shown, but which it would be possible to divide as 352, thus:

352·1	Finance, Local.
352·1042	English local finance.
352·10421	London's local finance.
352·1044	French local finances,
	etc.

Then the class returns at 355 to quite general subjects of central administration in 355-358 Military Science and 359 Naval Science. These classes cause much trouble, and decisions must be made:

Use 355-359 for the history and science of *warfare* only; when both military and naval science are treated in one volume, place in 355, and refer from 359. Histories of actual wars, campaigns, battles, and sieges go in History, not here.

255. Further hints:

(1) Do not confuse the subjects under 333.7-8-9 with the practical aspect of them in 600; i.e.:

Forestry is	634.9
Mining is	622
Fisheries are	639

(2) There are two uses of Money topics in 332 and 336. The former may be called the private use of it, the latter the public. 332 takes all private uses and cares of money; 336 is for government and local government finance, taxation, rating, etc., and valuations and loans in connection with public moneys.

Note that the history of money is Economics, 332.409, and at this place also goes the history of coinage, but that *coins* go at 737 Numismatics.

(3) Look up the meanings of the various topics under Law: these are often a source of trouble. There is an unusually important note under 347: "the law of a subject goes with the subject." Be sure you understand this.

(4) Consider carefully the difference between 343 and 364-5. The former is Law, the latter takes accounts of the actual institutions and their inmates.

(5) Use with caution the heading 375.01-09, subjects of special study, "divided like the classification 010-999." It has little or no value in a general library: the common sub-division 07, "study and teaching," applied to any number in Dewey provides what is wanted, and the study of every subject should be with the subject. If 375.01-09 is used, apply it only to such entirely teaching-theory books as that mentioned in paragraph 60. A book about a special subject may be a teacher's book, but it is not a book on teaching, and if this is not recognized it is possible to get the whole library under this heading.

Note that 379, Public Schools, means State-Supported Schools (an American use differing from our conventional

use of "public" schools, which means such schools as Eton, Harrow, etc.). English public schools would be 373.

256. It is important that the student should understand thoroughly the connotation of the main divisions of this class. For example, that Political Science and Economics are not the same subject. That:

(1) *Political Science* deals with government in all its forms, and the administration of government, by monarchs, parliaments, and departments of state, and the machinery—local government law, police, and money—by which these operate.

(2) *Economics* deals with wealth, its production and distribution (not simply as money which is merely machinery), but as labour, commodities, etc., and the circumstances in which these operate.

Be sure all through the class that the terms are completely understood.

257. READINGS.

DEWEY. *Decimal Classification*, p. 38 to end of Introduction.

Read Main Tables 300-99.

Learn 300-90 of Second Summary.

MERRILL. *Code for Classifiers*, pp. 39-75.

258. QUESTIONS.

(1) Classify by Dewey:

1. BOSANQUET. *The Philosophical Theory of the State*.
2. BOWMAN. *An Introduction to Political Science*.
3. COX. *The Problems of Population*.
4. YULE. *An Introduction to the Theory of Statistics*.
5. JOHNSON. *A History of Emigration from the United Kingdom to North America, 1763-1912*.
6. SOOTHILL. *China and England*.
7. WILSON. *Congressional Government: A Study of the American Constitution*.
8. FEILING. *A History of the Tory Party, 1640-1714*.
9. MORLEY. *Unemployment Relief in Great Britain: A Study in State Socialism*.
10. GOODLIFFE. *Credit and Currency: National and International*.

11. HUMPHREY. *Coin Collectors' Manual*.
12. KEYNES. *A Tract on Monetary Reform*.
13. LEGGETT. *Treatise on Law of Bills of Lading*.
14. LEE. *Law of British Shipping*.
15. LEES. *Constable's Pocket Book*.
16. FROEBEL. *Education of Man*.
17. LILLY AND WALLIS. *Law Affecting Catholics*.
18. LOWNDES. *Law of Marine Insurance*.
19. LITTLE. *Law of Burial*.
20. LITHIBY. *District and Parish Councils*.

(2) Classify by Dewey:

1. MACGILLIVRAY. *On Copyright*.
2. LUSH. *Married Women: in relation to Contract, Torts, and Trusts*.
3. MACMAHON. *Law of Licensing*.
4. MACSWINNEY. *Law of Mines*.
5. MOORE. *History and Law of Fisheries*.
6. MOYLE. *Imperatoris Justiniani Institutiones*.
7. ODGER. *Local Government*.
8. OKE. *Game Laws*.
9. NICOLAS. *Formation of Companies*.
10. *Notable Scottish Trials*.
11. *Report on Census, 1910*.
12. STONE. *Justice's Manual*.
13. BRYCE. *American Commonwealth*.
14. BAGEHOT. *English Constitution*.
15. DOYLE. *Great Boer War*.
16. GREGORY. *Mabinogion*.
17. *High History of the Holy Grail*.
18. LONG. *Railway Boards and Directorates*.
19. WILLIAMS. *Before the Bridge on a Liner*.
20. JONES. *Sections of a Submarine Described*.

(3) Classify the following Government Publications by Dewey:

1. *British Documents on the Origins of the War, 1898-1914*, vol. iv. *The Anglo-Russian Rapprochement, 1903-7, 1929*.
2. MINISTRY OF TRANSPORT. *Railway Statistics, Great Britain, 1929*.
3. GEOLOGICAL SURVEY OF ENGLAND AND WALES. *The Wells and Springs of Derbyshire, 1929*.

4. MYERS, J. C. *Report on Insect Infestation of Dried Fruit*, 1929.
5. MEDICAL RESEARCH COUNCIL. *The Wasserman Test (a flocculation or turbidity test for sera)*, 1929.
6. VITICULTURAL RESEARCH. *Memorandum*, 1929.
7. BUILDING RESEARCH SPECIAL REPORT. *Durability of Architectural Terra-Cotta and Faience*.
8. *Report on Economic Conditions in France in 1928, 1929.*
9. *Accounts Relating to Trade and Navigation of the United Kingdom*, 1929.
10. CHARITY COMMISSION FOR ENGLAND AND WALES. *Seventy-Sixth Report*, 1929.
11. FINLAND. *Report on the Economic Condition*, 1929.
12. EMPIRE MARKETING BOARD. *Development of Agriculture in British Honduras*, 1929.
13. EDUCATION (SCOTLAND). *Reports, etc., issued in 1927-8*, 1929.
14. ROYAL COMMISSION ON POLICE POWERS AND PROCEDURE. *Minutes of Evidence*, 1929.
15. BRITISH BROADCASTING CORPORATION. *Second Annual Report*, 1928, 1929.
16. *British Imperial Calendar and Civil Service List*, 1929.
17. ROYAL COMMISSION ON HISTORICAL MONUMENTS. *Survey: Roman London*, 1929.
18. *Nationality and Naturalization Laws of Certain Foreign Countries*, 1929.
19. MINISTRY OF TRANSPORT. *Report from the Select Committee on the Western Highland and Islands of Scotland*, 1929.
20. *Local Government Bill*, 1928.

(4) *Test in Theory.* Answer the following in not more than forty minutes without reference to your text-books:

"Explain the hierarchy of a classification schedule defining the steps by which it divides, and the necessity for mutual exclusiveness in class, division, sub-division, and section."

CHAPTER XXVII

LITERATURE AND PHILOLOGY

V.—400 PHILOLOGY

OUTLINE

- 400 Philology in General.
- 410 Comparative.
- 420 English Philology.
- 430 German.
- 439 Other Teutonic Languages.
- 440 French.
- 450 Italian.
- 460 Spanish.
- 469 Portuguese.
- 470 Latin.
- 480 Greek.
- 490 Other Languages.

800 LITERATURE

OUTLINE

- 800 Literature: General Works.
- 810 American Literature.
- 820 English.
- 830 German.
- 839 Other Teutonic.
- 840 French.
- 850 Italian.
- 860 Spanish.
- 869 Portuguese.
- 870 Latin.
- 880 Greek.
- 890 Literatures of Other Languages.

259. The consideration together of these two classes is justified by their relationship; they are cognates—language is the raw material of literature—although, because the base of Dewey is the Baconian classification

which separates them widely, the separation remains in the Decimal Classification.

260. The arrangement of the two classes, however, is primarily a mnemonic *linguistic* one, in which the same symbols are used, i.e. 2 = English, 3 = German, 4 = French, etc., throughout. Moreover, for the classifying of works in 890, Literatures of Other Languages, the sub-divisions of 490 are used with the "form sub-divisions" (.1 poetry, .2 drama, .3 fiction, etc.) from the literature class. We return to this later.

261. The Philology class is unsatisfactory in some ways. It was, of course, designed primarily for use in a library in which books in English far outweighed those in every other language and in which non-European languages were sparsely represented. Such non-European languages (with their own great literatures, as will be seen) were called "Minor." This is not of consequence in a public library here, but in a library in India or China it would be a great disadvantage. The class groups thus:

Comparative philology.

English philology.

European major languages.

German, French, Italian, Spanish, Latin,
Greek, and their dialects.

Minor languages.

English philology is worked out in full, and all other languages may be divided in the same way. Thus 426.8 is text-books for writing English verse, and 436.8 text-books for writing German verse; while 491.768 would be text-books for writing Russian verse, and so on. The *divisions 490-499 are used for 890-899; this is most important*: but do not confuse these divisions with the divisions of 420 just cited. The divisions of 490-499 are ethnic. One curious anomaly is that Romany (gipsy) language goes at 397, on the alleged ground that it has no linguistic or national affinities.

262. Difficulties occur with works in foreign languages.

In some libraries these, if they are works of the imagination—of Literature in the sense in which Dewey uses the term—are classed in Literature. Merrill suggests that English translations of foreign fiction go in English fiction in popular libraries, but with the originals in other libraries; and that non-fiction in foreign languages be classed by language in popular libraries, by subject in others. Bliss would put translations which are given original treatment—are versions—under their translator; thus Fitzgerald's *Omar* under Fitzgerald. I prefer the rule: *Class all translations, including fiction, popular and classic, with the originals from which they are translated: and in non-fiction classify all foreign books by their subject with a cross-reference in the catalogue from the language number.* This I do on the quite simple grounds that in literature students require original and translation together, and in other classes they want everything on the subject. The distinction between popular and "other" libraries is unnecessary, as they do not differ so much in function as librarians of "other" libraries are prone to suppose. Texts which are merely annotated class books for the study of a language are classed with the language studied in philology. It should be clear too that dictionaries of English-Other languages go under the foreign one, thus, Latin-English and English-Latin go under Latin, French-English and English-French under French, and where two foreign languages occur, as in a French-Swedish dictionary, under the probably less-familiar language; in this case Swedish.

263. Literature in the Decimal Classification is limited to belles-letters, and excludes writings intended to convey factual information. Classics which deal with specific subjects, even if they possess distinction for literary style, should still be classed with their subjects.

The arrangement of the class is by:

- (a) Language.
- (b) Form.
- (c) Chronological by authors.

The only variation is that American literature is distinguished from English and is a group by itself; its prominence is due, reasonably, to the fact that Dewey was designed for an American library. Each language is divided into poetry, drama, fiction, essays, oratory, letters, humour, and miscellany.

The language used by a writer takes predominance over the place of his birth. Conrad is an *English* writer, and so is Maartens.

264. *Works about works or versions, translations or selections from them are classed with the works. So also are concordances to them.* This is an almost universal rule. Hence Bradley's *Shakespearean Tragedy*, Shakespeare's *Dramas*, Lamb's *Tales from Shakespeare*, Bartlett's *Concordance to Shakespeare* all go in 822.33.

Works on the influence of a literature or author upon another literature or author go with the subject influenced; e.g. the influence of the French troubadours on Chaucer, with Chaucer, and the influence of Italy upon Elizabeth literature with the latter.

On the other hand the influence of *an individual* writer on a literature goes with the writer; e.g. the influence of Byron on German Literature goes with Byron.

Some of the most difficult headings are between 800 and 809. Most classifiers are unable to distinguish between 801, the Philosophy or Theories of Literature and Literary Esthetics, and 808, which we are told "treats literature from the standpoint of rhetoric." Follow these rules:

(a) Class works on the philosophy and theory of literature in general at 801; examples:

Hollingsworth. *Primer of Literary Criticism.*

Scott-James. *The Making of Literature Examined in the Light of Ancient and Modern Theory.*

Pritchard. *Training in Literary Appreciation.*

(b) Use 808 for works on the arts of recitation, oratory, etc., with selections of pieces chosen for performances,

but not for mere collections of poems, dramatic pieces, and oratory which go under these forms in 811, 821, 831, etc., and 822, 832, 833, and so on. The art (technique) of writing also belongs to this heading, thus:

- 808.1 Kerr. Art of Poetry.
- 808.2 Irvine. How to Write a Play.
- 808.3 Knight. Guide to Fiction Writing,
etc.

(c) Confine 808.8 to general anthologies and books of quotations from several languages. Anthologies on special subjects go with the subjects, not here.

Essay, as Dewey used it, means a small literary piece, and a collection of these forms such a volume as E. V. Lucas's *Cloud and Silver* or Lamb's *Essays of Elia*. It is sometimes used by authors of connected treatises, such as Locke's *Essay Concerning Human Understanding*, which, of course, are classed under their subjects, not here.

265. The division 890 is the only other one likely to trouble the student, but the matter is simple when once understood. The division is the same as the philology division at 490. Persian Literature, for example, takes the same number as Persian Philology, 491.55, except that 8 is substituted for the initial 4; Keltic Literature is 891.6, Russian 891.7. To this, as I have said, are added the form divisions usual throughout the literature class; i.e.:

- 891.6 is Keltic Literature.
- 891.61 Keltic Poetry.
- 891.62 Keltic Drama.
- 891.63 Keltic Fiction,
etc.

266. Individual authors who have written in two forms are to be classed under that with which they are most identified; i.e., place *all* Shakespeare's works at 822.33 and all Tennyson's at 821.81. Do not break up collected editions unless individual volumes have a *subject* interest which overrides form.

267. READINGS.

DEWEY. *Decimal Classification*.

Read Main Tables 400 and 800; the reading to be comparative as usual, and particular attention to be devoted to the notes.

Learn 400-90 and 800-90 of Second Summary.

MERRILL. *Code for Classifiers*, pp. 74-90.

268. QUESTIONS.

(1) Discuss the relative advantages and disadvantages of ethnic and language divisions in Language and Literature, as compared with the method of arranging all one form of literature together, irrespective of either. Illustrate your argument from the Dewey and Brown's Subject classifications.

(2) Make a Decimal Classification schedule of Medo-Persian Literature, showing all forms of literature.

(3) Classify by Dewey:

1. ARISTOTLE. *The Poetics*.
2. FIRDAUSI. *Shah Nameh*.
3. TENNYSON. *Complete Works*.
4. BROWNING. *Pippa Passes*.
5. PALGRAVE. *Golden Treasury of English Lyrics*.
6. SMITH. *Shorter English-Latin Dictionary*.
7. WILSON. *What Happens in Hamlet*.
8. Q. *Horatii Flacci Carminum, Lib. II, arranged for the use of Schools by T. E. Page*.
9. GOETHE. *Faust*.
10. OMAR KHAYYAM. *Rubiayat*.
11. *The Love Letters of the Brownings*.
12. STEVENSON. *Child's Garden of Verses*.
13. OSGOOD. *The Classical Mythology of Milton's English Poems*.
14. SWINBURNE. *Study of Ben Jonson*.
15. MUSSET. *On ne Badine pas avec l'Amour*.
16. MEREDITH. *Egoist*.
17. JONES. *Theory of Tragedy*.
18. ADDISON. *Essays from "The Spectator"*.
19. PHILIP. *A Dickens' Dictionary*.
20. QUINTILLIAN. *Institutes of Oratory*.

(4) Classify by Dewey:

1. ELWES. *Dictionary of the Portuguese Language*.

2. HODGSON. *Errors in the Use of English.*
3. DOWDEN. *History of French Literature.*
4. PAPILLON. *A Manual of Comparative Philology as applied to the Illustration of Greek and Latin Inflections.*
5. CARTWRIGHT. *Elementary Handbook of the Siamese Language.*
6. ROBERTS. *Zulu-Kaffir Language.*
7. MILNE. *When We Were Very Young.*
[Verses for young children.]
8. OMOND. *English Metrists: a Sketch of English Prosodical Criticism from Elizabethan Times.*
9. SWEET. *Short Historical English Grammar.*
10. LANSON. *L'Art de la Prose.*
11. BORROW. *Word Book of the Romany.*
12. WRIGHT. *Grammar of the Gothic Language.*
13. TASSO. *Jerusalem Delivered.*
14. CALDERON. *Six Dramas.*
15. WICKSTEED. *Dante and Aquinas.*
[The debt of D. to A.]
16. TAGORE. *Fireflies.*
17. NORWOOD. *Greek Tragedy.*
18. ARNOLD. *The Rigveda.*
19. PUSHKIN. *Eugene Onegin.*
20. JENNINGS. *The Chinese Shi-King.*

(5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your text-books:

"Define critical classification, its cause and effect; and give examples, imaginary or otherwise, drawn from bibliographical classification, to illustrate your meaning."

CHAPTER XXVIII

TEST EXAMINATION—I

269. *The following questions deal with matters which are within the scope of this text-book and represent what a student should be able to compass without the aid of text-books in six hours, giving three to each part of the paper. Every question and example has actually been set in a Library Association*

examination. Some of those in the practical part are severe, and comments are given as clues to ordinary practice.

THEORY

(1) What are the principles of the classification of knowledge and why must book classification use knowledge classification as a basis?

(2) What are the principles of notation?

(3) Many subjects may be divided by more than one relevant characteristic. Give examples, and show how these alternatives can be shown in a classification of books.

(4) In the Decimal Classification books on philosophy go in Philosophy, dictionaries go in Philology, essays go in Literature, societies go in Sociology, and books on history go in History. But all these headings appear in other classes as "form" divisions. What is the distinction in these cases? Illustrate by an example in each case (real or imaginary).

(5) Prepare a brief schedule for the classification of classification schemes of all kinds, using a notation with an alphabetic base and decimal sub-divisions, and giving examples of schemes you would place in every heading.

(6) What do you need to know about a book before you can classify it? How would you secure this information in the quickest way?

PRACTICAL

Classify by the Decimal Classification:

BANKS, PAUL. *Metropolis, or, the destiny of cities.*

The author's main contention is that London (like other capital cities) absorbs an excessive proportion of the actual income of the country.

[NOTE.—Banking and the money market; not public finance.]

WATERS, H. O. *Drink and Destiny.*

The author's thesis is that the course of civilization in various countries and the development of art, morals and religious ideas have been influenced by the kind of beverages generally consumed at different periods and places. Special attention is given to tea, beer, whisky, milk, coffee, absinthe, mineral waters and wine.

[NOTE.—Dominant subject *drink*, the purpose being clearly to demonstrate its power and not to illustrate any of the subjects it is said to influence. The only possible place is in Ethics.]

- GORDON, F. G. *Through Basque to Minoan: transliterations and translations of the Minoan tablets.*

Approaches the problem of the Minoan script from a new angle. Starting with the hypothesis of a connexion between Basque and Minoan, the writer, by assigning Basque values to the characters, seeks to demonstrate the practical identity of the two languages, and to establish the nature of the script.

[NOTE.—"The Minoans of Crete did not speak an Indo-European language" (B. F. C. Atkinson, *The Greek Languages*, p. 12); but Basque is an independent member of the latter family. Nevertheless, Minoan is the ancient language of the Aegean (anyway, of Crete) and may be a *Hellenic* dialect. Place under latter, but a cross-reference from Basque is essential. A difficult book on which expert classifiers might differ.]

- CAMERON, JOHN. *The Skeleton of British Neolithic Man: including a comparison with that of other prehistoric periods and more modern times.*

An investigation into the anatomical measurements and characteristics of British neolithic bones, skulls, and skeletons, with a census of neolithic and other ancient skeletal material in the museums of Great Britain.

[NOTE.—The first thought is Neolithic, or Later Stone Age. There is no specific mention of man here, but the index has a reference: Man, Antiquity, which confirms the view that it is the most useful place. Adequate classification would seem to demand a cross-reference from Anthropometry.]

- ETHERTON, P. T., and TILTMAN, H. HESSELL. *Japan: Mistress of the Pacific?*

"Survey of Japan, political, industrial, financial and social. Among the highly controversial subjects exhaustively dealt with are: Is Japan a poor nation? Is a 'white' Australia possible? Can Japan hold Manchuria? Is Tokio anti-British? The Japanese population problem. Japan's continuing fight for the hegemony of the Pacific."

[NOTE.—Choice between Description and Foreign Relations, but a cross-reference must be added from the alternative.]

- FISK, DOROTHY. *Exploring the Upper Atmosphere.*

History and description of means by which the composition of the upper atmosphere of the earth has been investigated. Chapters on ballooning in adventure and in research, sound as an explorer, ultra-violet rays and their discovery of the ozone layer, paths of radio-waves, polar lights, cosmic rays.

[NOTE.—The atmosphere, not ballooning, or the other subjects mentioned in the note. Illustrates the useful general rule that books on one subject used to illustrate or prove another, go under the subject proved or illustrated.]

- GRONDONA, L. ST. CLARE. *Empire Stock-Taking.*

A survey of the trade returns of the whole of the commonwealth of British nations, showing to what extent Great Britain can look to the

overseas empire for supplies. The extent of surpluses and deficiencies of commodities, and the purchasing powers of the empire are analysed. Surveys the tariff systems of the countries, etc.

[NOTE.—Commerce, not commodities or tariffs.]

HUXLEY, J. S. *Religion without Revelation.*

The religion of Julian Huxley, grandson of Thomas Huxley, is a religion founded on agnosticism and for people who are both intellectual and emotional. With scholarship and zealous regard for the truth, the author analyses the religious feeling of man and points out a pathway to a religion which will satisfy both sides of his nature—the reasoning and the feeling.

[NOTE.—Natural religion.]

KEITH, Sir A. *The Place of Prejudice in Modern Civilisation.*

The Rectorial address, Aberdeen University, 1931. "Racial prejudice," he believed, "worked for the ultimate good of mankind . . . and had to be given a recognized place in our modern civilisation," but should be "kept under the control of reason."

[NOTE.—Prejudice is a "state, or defect, of mind, or of thinking."]

CRUM, RALPH B. *Scientific Thought in Poetry.*

A study of the influence of the ideas resulting from recent scientific discovery upon the material and manner of modern poetry. To-day, some critics have prophesied the utter eclipse of poetry before that outward sweep of science; others have insisted that the two realms are distinct and have no relationship; still others have echoed the idea of Matthew Arnold that poetry has, and will always have, an enduring place in our civilization in its function of interpreting science and all other intellectual concepts to the affections of mankind.

[NOTE.—Not of much interest to science readers. Literature (general), with form deviation.]

BENTLEY, W. A., and HUMPHREYS, W. J. *Snow Crystals.*

A representative selection of more than 2,000 microphotographs of snow crystals and kindred forms of water. Introductory text gives the procedure followed in making the photographs and other facts regarding them. The book is of interest to the scientist, the artist, and all to whom the beautiful in nature has a strong appeal.

[NOTE.—Dominant interest is snow crystals in Geology.]

ANSON, PETER F. *The Quest of Solitude.*

An attempt to cover the history of the solitary life in the Christian Church in a manner interesting to the general reader. His story begins with St. John the Baptist in the Palestinian desert, and ends up with Charles de Foucauld, the nineteenth-century hermit of the Sahara. Other chapters describe the eremitical life in the Oriental Churches, individual hermits, anchorites, and recluses in the Middle Ages, and the eremitical religious orders, such as the Carthusians, Camaldolesi, and the Carmelites.

[NOTE.—Limited to Christianity; either Asceticism or Monasticism; we prefer the latter. Not, we think, 177-8 Social Ethics—solitude.]

CHAPTER XXIX

VII.—500 SCIENCE

OUTLINE

500	Science in General.	549	Mineralogy.
510	Mathematics.	550	Geology.
520	Astronomy.	560	Paleontology.
530	Physics.	570	Biology. Archæology.
540	Chemistry.	580	Botany.
548	Crystallography.	590	Zoology.

270. The Decimal Classification divides into :

General Science.
 Mathematical Sciences.
 Physical Sciences.
 Natural Sciences.

In this class more than any other we have a series of natural science classifications compounded to make the class. Thus, the classifications of Physics, Botany, and Zoology, to cite three examples only, are those recognized by the workers in those sciences; or they are to a large extent; and we fit books into them. There are thus, as Hulme suggests in his criticism of this type of classification, many minute headings for which no literature exists or is likely to exist. The fact that a classification is redundant in a few places, however, is better than that it should be deficient.

In some classes it is difficult to apply, mainly because the classification of the physical sciences is in such a state of flux that scientists themselves are not in entire agreement about it.

The student will be greatly assisted if he familiarizes himself with the terminology of the scheme, especially in the divisions of Chemistry, and Biology, with its sub-divisions Botany and Zoology.

271. The following general points may be noted :

(1) It is a class dealing with pure science and is to

be clearly distinguished from applications of science. Thus, mathematics takes books on the systems, theories, and problems of mathematics, but not the mathematics of particular things; thus *Mathematics for Engineers* goes in engineering, and so on.

(2) The difference between pure science and its applications can be seen at such headings as 529.78, 681.113 and 749, all of which deal with clocks. 529.78 simply deals with the theory of the astronomical registering of time, or with the clock viewed simply as an instrument for that purpose; while 681.113 is the manufacture of clocks, and 749 is the clock as an article of art furniture.

(3) Difficulties occur with such books as *Collect's Structure of the Alps*, *Avebury's Scenery of England*, *Geikie's Scenery of Scotland*, *Ward's English Coastal Evolution*, and many others of which *Smyth's Madeira Meteorologic* is a good example, in which there is a pull towards place. But these books are on geology and meteorology, and here the stress must be on the science; a few moments' thought will convince that the place is only a subject used to illustrate the science, and this must always be so in such books.

272. The following special points should also be noted:

(1) 508.3 takes general travels which are wholly scientific and which cover all science more or less; i.e., astronomy, geology, and the biological sciences. Where, however, the results are in a single science, the book goes to that science; for example, if biology alone, class at biology; i.e., 570, divided as 940-99. Cross-refer from the country. The headings are not to be used for ordinary travel books, and if you have any doubt as to the scientific character of any book, class it in travels, 914-919, and cross-refer.

(2) As indicated above, there are difficulties at 530-540, owing to recent and rapid scientific changes, and already there must be found places for subjects not in the classification and for certain altered classings. The following are now regarded as *general scientific theories*, and are placed

at 530.1, Ether, Wave mechanics; Relativity; the quantum theory; 531.4 takes rotary motion, the gyroscope, etc.; 531.7, which is left blank, may be used, as in the Classification Décimale, for fundamental measurement; 532.1 takes compressibility of liquids; 532.6 surface tensions; 534.2 sound-ranging; while decibels and methods of sound analysis, straboscopic and other, go at 534.4; 535.2 should include photometry and photo-electricity; 537.1 is the best place for the mass and measurement of electrons and their relations, as also for negative electricity; 537.22 may take dielectrics; 537.53, now vacant, can be used for induction spark in rarified gases, X-rays, cathode rays, anode rays, electric discharges, ionisation of gases, thermionisation, cosmic rays, etc. These and other considerations have been stated admirably by Wilfred Ashworth, to whom I am indebted.¹

(3) Outdoor books, such as Hudson's *Nature in Downland*, Jefferies' *Nature Near London*, and the whole host of similar books are sometimes (as I think erroneously) classed in English Essays, 824. Class all this sort of books, which deal with birds, beasts, and flowers at 570.

(4) Any study in zoology of a special creature is to be classed with the creature. Thus *The Instincts of Bees* goes with Bees, not at Instinct.

(5) Books which tell in a romantic manner the life of an animal, fish, bird, etc., class with the subject, unless the literary quality is so important that it completely overrides the subject, as may be the case in a very few books, such as Maeterlinck's *The Life of the Bee*.

273. READINGS.

Read for a revision of theory.

SAYERS. *The Grammar of Classification*. Ed. 4, 1935. Library Assistant's Association Series. From S. W. Martin, Carnegie Library, Herne Hill Road, S.E.24.

¹ "The Dewey Classification of Physical Literature; a practical code." In *L.A. Record*, 1936, pp. 383-6. The alternative suggestions in the Science Library's Classification, referred to below in paragraph 154, are worth study as they represent the English version of the *Classification Décimale*.

This is the briefest conspectus of the subject that has been written, and is deliberately confined to the essential points for students.

DEWEY. *Decimal Classification*.

Read Main Tables 500-99.

Learn 500-90 of Second Summary.

MERRILL. *Code for Classifiers*, pp. 57-62.

274. QUESTIONS.

(1) Explain, with four examples, the principle of Brown's Subject Classification that "each subject is placed as near as possible to the science on which it is based."

(2) Classify by Dewey:

1. ASTON. *Isotopes*.
2. BARNARD AND WELCH. *Practical Photo-Micrography*.
3. BRITON. *Hydrogen Ions*.
4. CLARK. *Electronic Structure and Properties of Matter*.
5. CLINE. *Tropical Cyclones*.
6. COMPTON. *X-Rays and Electrons: an outline of recent X-Ray theory*.
7. ELTON. *Animal Ecology*.
8. GATES. *A Botanist in the Amazon Valley: the flora and fauna in the land of floods*.
9. GOODRICH. *Living Organisms: their origin and evolution*.
10. GREGORY. *Combustion from Heracleitos to Lavoisier*.
11. HALDANE AND GRAHAM. *Methods of Air Analysis*.
12. HEAVISIDE. *Electro-Magnetic Theory*.
13. HENDERSON. *Prehistoric Man*.
14. HOLLAND. *The Butterfly Book: a popular guide to the butterflies of North America*.
15. HULL. *Treatise on the Building and Ornamental Stones of Great Britain and Foreign Countries: arranged according to their geological distribution and mineral character*.
16. MAETERLINCK. *The Life of the White Ant*.
17. SCARLE. *Experimental Elasticity*.
18. THOMSON. *Conduction of Electricity through Gases*.
19. TUTTON. *The Natural History of Ice and Snow*.
20. FRIEND. *Theory of Valency: or, Definite Atomic Attractive Force*.

(3) Classify by Dewey:

1. TYNDALL. *Forms of Water in Clouds and Rivers, Ice and Glaciers.*
2. WOODWARD. *Geology of Water Supply.*
3. GORE. *Art of Scientific Discovery.*
4. DAWSON. *Fossil Men and their Modern Representatives.*
5. CONN. *Story of Life's Mechanism: the conclusions of modern biology in regard to the mechanism of living activity.*
6. LOCK. *Recent Progress in the Study of Variation, Heredity, and Evolution.*
7. EOS. *The Wider Aspects of Cosmogony.*
8. JEFFERIES. *Nature near London.*
9. WHITE. *Natural History of Selborne.*
10. WARMING AND VAHL. *Oecology of Plants: an introduction to the study of plant communities.*
11. HEATH. *The Fern Paradise.*
12. PAGET. *Experiments in Animals.*
13. KEW. *The Dispersal of Shells: means of dispersal possessed by fresh-water and land mollusca.*
14. STAVELY. *British Spiders.*
15. THOMPSON. *Roentgen Rays, and Phenomena of Anode and Cathode.*
16. GEIKIE. *The Foundation of Microscopic Petrography.*
17. MILNE. *Seismology.*
18. DARWIN. *The Foundations of the Origins of Species: two essays.*
19. BROOKS AND GLASPOOL. *British Floods and Droughts.*
20. HAAS. *Wave Mechanics and the New Quantum Theory.*

(4) *Test in Theory.* In order to make a Bibliographical System practical, it must be equipped with certain auxiliaries. Examine this statement, using the auxiliaries of the Decimal, Expansive, and Subject systems to explain your meaning.

CHAPTER XXX

VIII.—600 USEFUL ARTS. APPLIED SCIENCE

OUTLINE.

- 600 Useful Arts. Applied Science. General.
- 610 Medicine.
- 620 Engineering.
- 630 Agriculture. Agronomy.
- 640 Home Economics. Domestic Science.
- 650 Communication. Business.
- 660 Chemic Technology.
- 670 Manufactures.
- 680 Mechanic Trades. Amateur Manuals.
- 690 Building.

275. In the Decimal scheme, 600, Useful Arts, is a heterogeneous class which, as the above outline indicates, divides broadly as follows:

The Human Body, its construction, diseases, treatment, etc.

Care must be taken to distinguish between the treatment of what appear to be the same subjects in Medicine. Be sure that you know the different meanings of: Anatomy, which may be called the analysis of the body; Physiology, which is its organic working (how its parts *work*); Pathology, which is the description of diseases; *Materia Medica* and Therapeutics, which are the *treatment* of diseases. Notice, further, that sandwiched in the above series are classes 613, Personal Health, which deals with all methods of caring for the health that can be taken by the individual; and 614, Public Health, which deals with government and other community control of medicine, food purity, contagious and infectious diseases, nuisances, the protection of life from accidents, the disposal of the dead, and the registration of births and deaths.

Engineering in all its practical applications.

Agriculture, including domestic gardening; and fishing and trapping (where these are for food or practical

purposes, and *not* for sport—in the latter case they are Recreative Arts).

Domestic economy, including the house, its heating, lighting, etc., furniture and sanitation (but not plumbing, or lighting as trades, which have other places in the same class), clothing, food, and home nursing (not medical nursing, which is 610·73).

Communication and commerce, on the practical executive side, office methods, book-keeping, accounts, etc. (The economic side is in 380.)

Chemical technology, or practical applications of chemistry to manufacture.

Metallurgy.

Manufacturers.

Trades (Professional and Amateur manuals).

Building (including car-building). Shipbuilding, formerly at 699, is now called Naval Architecture and Boat-building at 623·8.

276. Be very careful to read all notes in the class. If once the character of the class is fully understood, the main difficulties will disappear. Cross-division occurs with Dewey when the fact is not understood that in this scheme the theory of science is divorced from its applications as was explained in the last chapter. Here we have only applications. Note that the whole class is practical; Electricity, as a science, is 537; its application by the electrical engineer is 621·3. Building is the actual work of raising the structure; not its planning or description, which is 720. Note, too, the difference between 625, which is the *construction* of railways, 656, which is the *working* of them, and 383, which deals with their *government, economic value, and business administration*.

Examples of books:

625 Laying a Permanent Way.

656 A Year's Engine Driving.

385 Nationalization of Railways.

The class is full of similar points; and we can only repeat the rule that *practical aspects only of a subject are put in 600, and even there may be separated by purpose, vocation, or some*

other characteristic. Thus 621.74 Foundry, does not deal with foundry-work which is 671, but with the organization of foundries within factories, as implied by the heading 621.7. There are many such instances, which can only be checked by reading upward to the containing heading.

Special study should be directed to 658, which in the 1933 edition is greatly expanded, and is now commensurate with the growing importance of the Business Methods for which it provides.

In earlier editions of Dewey, Aeronautics was placed in 533.6 under Gases, as the only successful aerial things then were balloons. This place is no longer used, the whole subject being developed in the expanded 629.13. Automobiles (Motors) have also a minutely-expanded treatment at 629.2. These subjects have very long numbers, and, as indicated in paragraph 55, above, illustrate the disadvantages of a short notational *base*.

277. One or two interesting special decisions have been suggested by Merrill and others:

(1) In Medicine a special disease studied in a special organ goes with that organ rather than with the disease; and similarly the surgery of a special organ goes with that organ and not with the system of which that organ is part.

(2) Tools go with the craft in which they are used.

(3) It is suggested that accounting, advertising, etc., for special industries should go under accounting, etc., and be sub-divided by the industries (by the classification). I think it better to place such topics under the industries, for the reasons given in section 178.

(4) Heed carefully the important note under 670.

278. READINGS.

DEWEY. *Decimal Classification*.

Read Main Classes 600-99, making careful comparison with the Subject arrangement of the same subjects.

Learn 600-90 of Second Summary.

MERRILL. *Code for Classifiers*, pp. 63-7.

279. QUESTIONS.

(1) What is meant by the statement that Dewey divorces

theory from practice in 500 and 600? How does this treatment compare with that in the Brown Scheme?

(2) Classify the articles in this month's "Nineteenth Century and After."

(3) Classify by Dewey:

1. GATES AND BRYANT. *The Spinning of Aeroplanes.*
 2. BATEMAN. *How to Own and Equip a House.*
 3. BOLLING. *Sales Management.*
 4. BROWN. *The Conquest of the Air: an historical survey (of aerial navigation).*
 5. BROWN. *The Elements of Radio-Communication.*
 6. BRUNNER. *The Manufacture of Lubricants, Shoe Polishes, and Leather Dressings.*
 7. CHRISTIE. *The Evolution of the English Farm.*
 8. DOWSON AND LARTER. *Producer Gas.*
 9. GUNN. *Little Things that Matter for those who Build.*
 10. KEMP. *Alternating Current Electrical Engineering.*
 11. MOUNTJOY. *Points of the Dog.*
 12. PRIESTMAN. *Principles of Wool Combing.*
 13. JONES. *The Tinfields of the World.*
 14. PEDDIE. *Printing: a short history of the art.*
 15. BIRD. *The Internal Economy of an Accountant's Office: with special reference to accounts and costing.*
 16. JONES. *Timbers: their structure and identification.*
 17. HARE. *British Railway Operation.*
 18. LOCKSHART. *A Short Manual of Industrial Hygiene.*
 19. WAIT. *The Manufacture of Enamel Paints.*
 20. WOODHOUSE. *Artificial Silk: its manufacture and uses.*
- (4) Classify:

1. THOMPSON. *Elementary Lessons in Electricity and Magnetism.*
2. LODEMAN. *Spraying of Plants: history, principles, and practice of the application of liquids and powders to plants for destroying insects and fungi.*
3. DICKSEE. *Hotel Accounts.*
4. BOLAND. *Century Invalid Cookery Book for Nurses.*
5. REES. *The Grocery Trade: its history and romance.*
6. WHITE. *Basket-making at Home.*
7. THOMSON. *Your Eyes and Their Care.*
8. STITT. *The Diagnosis and Treatment of Tropical Diseases.*
9. ROSS AND FAIRLIE. *Handbook of Anæsthetics.*
10. TENNAR. *Bacteriology.*

11. PATERSON. *Indigestion: its differential diagnosis and treatment.*
12. BABBITT. *Sewerage and Sewage Treatment.*
13. NAYLOR. *Gymnastics: a manual for leaders.*
14. FOX. *Handbook for Oxy-Acetylene Welders.*
15. HAINES. *Surveying for Agricultural Students.*
16. DANE. *Home Upholstery.*
17. EDWARDS. *Glove-making.*
18. SABIN. *House Painting.*
19. AYRES. *Land Drainage and Reclamation: agricultural engineering.*
20. EARLE. *Sugar Cane and Its Culture.*

(5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your text-books:

"What are the qualities required in a sound notation? Give examples of 'mixed' and 'pure' notations respectively, and of one in which arbitrary signs are used. Explain also the auxiliaries of notation, and especially the application of those devised by Biscoe, Cutter, Jast and Merrill, and Stewart's adaptation of the last-named."

CHAPTER XXXI

IX.—700 FINE ARTS. 790 AMUSEMENTS

OUTLINE

- | | |
|-----|------------------------------|
| 700 | Fine Arts in General. |
| 710 | Landscape Gardening. |
| 720 | Architecture. |
| 730 | Sculpture. |
| 740 | Drawing. Decoration. Design. |
| 750 | Painting. |
| 760 | Engraving. |
| 770 | Photography. |
| 780 | Music. |
| 790 | Amusements. |

280. Roughly it may be said that Dewey regards Fine Arts as higher developments of Useful Arts. The class

is one that exhibited many faults at various stages of the development of the scheme, but these are gradually being revised. Music, for example, has been improved in the last editions, although as music itself and works about music go together theory has got the better of convenience. On this reference should be made, both for criticism of the scheme and for valuable definitions, as well as for a special arrangement and expansion of 780 to McColvin and Reeves's *Music Libraries*. Amusements also have been revised, but one cannot help feeling that an alphabetical arrangement of games, etc., would be more serviceable than the present one. Other sections remain somewhat sketchy, as, for example, Photography, which is not usable as it stands. I recommend for 772 also an alphabetical order of processes, instead of the present confusion, which it is to be hoped will be cleared in the next edition.

The class deals with the beautifying of the plane in Landscape Gardening (which may take only garden design and layout for the pleasure of the eye and mind, not for practical cultivation which is 635. This often causes muddle as it is sometimes difficult to distinguish between Landscape and other gardening, but if the distinctions made are observed not much difficulty will be experienced); Architecture; Sculpture (730), which, it must be noted, includes ceramics, coins (as works of art, not as currency) engraved gems (not precious stones in the natural state, which are 553.8) and Bric-a-Brac; Drawing, Decoration, and Design, in which the headings most carefully to be noted are Art Needlework (the artistic side of the subject only; Domestic Needlework, and dressmaking are 646); and Artistic Furniture (which must not be confused with furniture-making, 684). 750 is an important division. The heads 750-758 must be regarded as dealing with the *subjects* named; that is to say, a book on landscape painting in theory, in history, or in any other aspect, is 758, *but* a discussion of the works of an individual landscape painter goes in 759,

with the national division number. The other headings are simple.

281. Note the following:

(1) Art æsthetics only are at 701, not literary, musical, or other æsthetics, which go with their subjects.

(2) At 708 put "museums" only when they are Art Museums. Ordinary "museums" are specially provided for at 069; science museums go at 507; museums of other subjects class at the subject; thus a museum of Domestic Economy is 640.74. Collectors' guides are usually classed at the museum numbers in the same way; that is to say, 708 takes works on collecting art objects in general, but the collecting of any special subject goes with the subject.

(3) Architecture must not be confused with actual Building, which is a Useful Art (690). The division is somewhat difficult, as it provides curious places for types of buildings. Thus a book on Westminster Abbey goes at 726, and not, except by reference in the catalogue, at 914.21 as may be supposed. Of course if the book has no architecture in it, the placings may be reversed. This is orthodox Dewey, but a good case can be made for placing all cathedrals and churches under their locality, in 914.19, as their interest is mainly local and this usually far exceeds the architectural interest. If such a decision is made, cross-references from Architecture are essential. Similar reasoning applies to castles, etc.

(4) Note that works on the Theatre are to be distinguished from those on Drama itself; that is to say, 792 takes works on the Theatre and its technique of production and acting; not the text of plays or criticisms of them, which go in Literature.

282. READINGS.

BROWN. *Subject Classification.*

Look up the references in the Introduction to the pervasive nature of Fine Arts.

DEWEY. *Decimal Classification.*

Read Main Classes, 700-799.

Learn 700-790 of Second Summary.

MERRILL. *Code for Classifiers*, pp. 67-74.

HULME. "Principles of Book Classification," in *L. A. Record*, vols. xiii-xiv. (Reprinted in the A.A.L. Series.)

These scholarly articles should be read with critical care. Some critics think that the author is wrong in divorcing philosophical classification from bibliographical but his work is nevertheless full of suggestion for the advanced student of classification.

283. QUESTIONS.

(1) Classify by Dewey:

1. HENSLow. *Garden Architecture*.
2. NICHOLS. *Italian Pleasure Gardens*.
3. ROCKWELL. *Lawns*.
4. ANTONINI. *A Small Collection of Ancient Rosettes as Found on Roman Monuments*.
5. POWYS. *Repair of Ancient Buildings*.
6. BRIGGS. *English Architecture: an outline*.
7. ACTON. *Domestic Architecture and Old Furniture*.
8. BROWN. *The Heritage of India: Indian Painting*.
9. CODRINGTON. *An Introduction to the Study of Mediæval Indian Sculpture*.
10. COLLINS. *Modern European Art: a student's introduction*.
11. RUSKIN. *Ariadne Florentina: six lectures on wood and metal engraving*.
12. BOSANQUET. *History of Aesthetic*.
13. ELLIS. *Elgin and Phigaleian Marbles of the Classical Ages in the British Museum*.
14. MIDDLEMORE. *Great Age of Italian Painting*.
15. ABNEY. *Evening Talks at the Camera Club on the Action of Light in Photography*.
16. PARKER. *A B C of Gothic Architecture*.
17. LUCAS. *What shall We Do Now? Suggestions for children's games and employments*.
18. WHYMPER. *Scrambles in the Alps*.

(2) Classify by Dewey:

1. COBBETT. *Cyclopædic Survey of Chamber Music*.
2. FARMER. *History of Arabian Music*.
3. SANKEY. *Sacred Songs and Solos*.
4. WILM. *The Appreciation of Music*.
5. MATHAY. *The Art of Touch in All Its Diversity: an analysis and synthesis of pianoforte tone-production*.

6. DOLMETSCH. *The Art of Orchestral Conducting.*
 7. ELLIS. *Pronunciation for Singers: with especial reference to the English, German, Italian, and French languages.*
 8. ELGAR. *The Dream of Gerontius.*
 9. COLERIDGE-TAYLOR. *Three Dream Dances for Orchestra.*
 10. MORTON. *Art of Theatrical Make-up.*
 11. LAUBACH. *Practical Viola School.*
 12. ERVINE. *The Organized Theatre.*
 13. WHYMPER. *Scrambles in the Alps.*
 14. MELVILLE. *Chats on Postage Stamps.*
 15. HUMPHREYS. *Coin Collectors' Manual.*
 16. AUSTIN. *Tone Stanzas for the Pianoforte.*
 17. BENNETT. *Elements of Photogravure.*
 18. ALEKHIN. *My Best Games of Chess.*
 19. DOBREE. *Timotheus: the future of the theatre.*
 20. WAKEFIELD AND MARSHALL. *Rugger.*
- (3) Summarize in less than 500 words the eleven rules for "Assigning Class Numbers" (Dewey's Introduction).
- (4) State the arguments for and against placing Pictorial and Plastic Arts in Generalia, as in Brown; then defend the placing of them there.
- (5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your text-books:
- "The Subject system has a specific index; the Decimal and Expansive systems have relative indexes. Explain and examine the functions of each form, exhibiting in your answer what you conceive to be the correct method of approaching a classification scheme in classifying a book."

CHAPTER XXXII

X.—900 HISTORY AND ITS COLLATERALS

I.—INTRODUCTORY. HISTORY AND TRAVEL

284. This is one of the most important, and one of the most burdened, of the classes. It is in some ways three classes—Biography, History, and Geography—and it usually occupies more space in a general library than any

other class. It is a class which, owing to the use of geographical numbers, introduced by Dewey with the words "divide like 930-999" has a pervasive power possessed by no other. In its use more errors are made than with other classes; a most curious but undoubted fact. It embraces:

- 900 The generalia of history. (Note carefully that this excludes the generalia of Travel or Biography.)
- 910 Geography and Travels, for which a more suitable and comprehensive name would be "Description."
- 920 Biography.
- 929 Genealogy and Heraldry.
- 930 Ancient History.
- 940-99 Modern History.

This is a wide field, and is a perfectly simple one if the following principles are clearly understood.

285. It will be noted that the headings 900-909 differ very slightly from similar headings in other classes. Incidentally it may be noted that History is really a great *form class* so far as the divisions 930-999 are concerned, because in them the countries are the subject viewed from "the point of view of history." The only places in the scheme where history is a *subject* are 901, where history is regarded from the point of view of philosophy, and 907, where the methods of studying and writing it are placed. Or to put it another way, in 910-919 and 930-999, the place written about is the subject, and the treatment is from the standpoint in the one of geography, in the other of history. Out of this comes the simple notion that one number may stand for the place with some prefixed number to indicate which of these points of view is involved.

In the divisions 901-909 note:

(a) 901 is for the theory and philosophy of history, i.e., the methods, style, historic imagination, and rules involved in its writing. The term "history of civilization" as used by Dewey at 901 is really the history of culture;

thus a book on the Future generally may go here. History of any place or conditions or events, must go at 909 or in 930-999.

(b) Chronologies which go at 902 are charts or dictionaries of dates, such as Haydn's; not the scientific calculations by which calendars are constructed or criticized, which go in Astronomy.

(c) There is a note under 907, "education, methods of teaching and writing history," referring to 371.3. Ignore it in a general library.

(d) 909 is for works of so universal a character that they transcend the bounds even of a continent. Wells's *Outline of History* is a recent example for which this place is used.

286. In the division 910, Geography, Travels, and Description, there are one or two difficult headings. Note the "generalialia" sub-divisions, 910.1-910.9 especially.

.4, Circumnavigations, takes such voyages as Captain Cook's and Captain Joshua Slocum's *Sailing Alone Around the World*. Here also go the history of piratical exploits, but the index invites us to put the lives of particular pirates at 932.41. A book on the search for pirate treasure would go here at .4. It should be noted that air voyages go in 629.1309 (divided geographically). This should be revised in order that such voyages may go at 910.4, when circumnavigations, and at the more local divisions in 914-19 when the voyage is a more limited one.

.7. Use this for all methods, primary or otherwise, of teaching geography.

.8. Collections of travels placed here must be travels covering more than one continent; otherwise they go under the place in 914-919.

In the headings 911-913, note:

911 and 913 appear to be superfluous headings except in very few instances. The political changes in countries are part of the *history* of those countries, and are better classed with them. The antiquities of a country are even

more definitely history. It is best to ignore both headings in the ordinary library.

287. In the divisions 914-919 we are introduced to what is a main feature of our classification. As we say above, as geography and history are modes of regarding places, it is useful to have a constant number for the place and a qualifying number for the mode. This we get in the tables at 930-999; and 914-919 are an outline qualifying table to be used with 940-999. It will be seen first that 930-939 is a table covering Ancient History to the fall of the Western Roman Empire in A.D. 476. The greatest of care is to be observed in using this; for example, a history of Egypt may be either 932, or 962 as it may be Ancient or Modern. Usually, the distinction is fairly obvious in a book; sometimes, as in histories of China and India, it is by no means so. Bear in mind that the separation comes at A.D. 476, and only books dealing *predominantly* with earlier times should be placed in 930-939.

288. Returning now to 940-999, we have the following table of continents shown in the figures composing the numbers in these divisions:

- 4 Europe.
- 5 Asia.
- 6 Africa.
- 7 America.
- 8 South America.
- 9 Oceania and the Polar Regions.

For the *History* of any of these continents we prefix 9 to the number; thus:

- 94 History of Europe.
- 95 History of Asia.

We take from the outline 914-919 the figure 91 to make the prefix for *Geography*; thus:

- 914 Travel in and Geography or Description of Europe.
- 915 Travel in and Geography or Description of Asia.

289. The tables 940-999 are worked out with a certain

minuteness; thus, to give a brief example, they are worked out first to geographical units; thus:

97	History of North America.
917	History of Canada.
971·4	History of Quebec Province.
971·44	History of North Central Quebec.
971·447	History of Quebec.
971·4471	History of Quebec City.

The tables 914-919 are not thus worked out, because the one working at 940-999 suffices. In order to mark *Travel* or *Geography* we substitute 91 for the initial 9 in the class-marks first given; i.e., 917·1 is *Travel* in Canada, 917·14471 is the *Description of Quebec City*. To put it again another way, *to mark the geography of a place, take the number for the place from the history tables 930-999, insert a 1 after the 9 and move the decimal point one place to the left.*

290. The geographical tables have a wide application throughout the system which must be fully understood. In almost countless places Dewey writes "sub-divide like 930-999" as at 591·9, *Geographical distribution of animals*. At this number are gathered such works as *The Animals of India, the Animals of British Columbia*. In these cases the classifier writes the class number, and adds the numbers for India and British Columbia respectively, *but, mark, without the initial 9 from 930-999, which means history only*: thus for India 54 (not 954), for British Columbia 711 (not 971·1); and so we get the symbols:

591·954	The Animals of India.
591·9711	The Animals of British Columbia.

not 591·9954, which would mean animals of some part of the Antarctic regions; or 591·99711, which means animals of some other Antarctic place. Where local division is desired of a subject number not marked for such division by Dewey, the common sub-division form 09 (*historical or local treatment*) must be added to that number and *this* can be divided as 930-999 as shown in paragraph 58.

291. It will be noted that under each country there is

usually a series of "period division" numbers; i.e., at 942, England, we have the following:

- 01 Anglo-Saxon.
- 02 Norman.
- 021 William I.
- 022 William II.
- 023 Henry I.
- 024 Stephen.
- 03 Plantagenet.
- etc.

These are sometimes applied not only to general English history, but also to local history; thus:

- 942.21 History of Surrey.
- 942.21021 Surrey under William I.
- etc.

Three rules emerge here:

(1) Classify a book of part of a country's history under the period treated, not under the history of the country generally: thus Gardiner's *History of the Great Revolution* at 942.06, not at 942.

(2) If a work covers two periods, class under the first unless the second one predominates. If it covers several periods, class at the general heading.

(3) Always put local history under the place, not under the country; thus Malden's *History of Surrey* at 942.21, not at 942. This applies also to local history of a special period. See *Surrey under William I* above, which goes at Surrey, not the Norman period of English History. (See axiom at Exercise II, paragraph 232, above.)

Note the following:

The British Empire (as a whole) goes with England.

Classify islands with the countries nearest to them.

Rivers crossing several countries go under the Continent.

When, in Travel, the scientific interest predominates, class at 508.3-9, but when in doubt, at Travel.

Bliss suggests the classing of the Pyrenees under Spain, the Ural Mountains under Russia, the Alps under

Switzerland. If exclusively scientific books, they may go under Physical Geography, 551.43, with geographic sub-divisions, but this place is not preferred here.

When, in a work of Travel, the person is of greater interest than the place, as would be the case in the Travels of the Prince of Wales, etc., place in Biography. To quote Bliss: "Class travels of personages under Biography unless the interest is really geographical."

292. READINGS.

DEWEY. *Decimal Classification*. (Introduction, p. 31 *et seq.*)

The Main Tables should also be read carefully in this class.)

MERRILL. *Code for Classifiers*, pp. 91-101.

BROWN. *Subject Classification: and* CUTTER. *Expansive Classification*.

(Compare their methods of geographical division with Dewey's.)

293. QUESTIONS.

(1) What examples of the "Geographical treatment of subjects" are you able to find in Dewey? What is meant by the statement that "locality is the arranging characteristic in History, and works on a subject treated locally go with the subject"? Give examples.

(2) Classify the articles in the current "Nineteenth Century and After."

(3) Classify by Dewey:

1. ARNESEN. *The Polar Adventure*.
2. BONSELS. *An Indian Journey*.
3. DYKE. *In Java and the Neighbouring Islands*.
4. GIBBONS. *Tramping to Lourdes*.
5. LUBBOCK. *Round the Horn before the Mast*.
6. REYNOLDS. *From the Ivory Coast to the Cameroons*.
7. PAINE. *Book of Buried Treasure: a true history of the gold, jewels, and plate of pirates, galleons, etc., which are sought after to this day*.
8. BELL. *Story of London's Great Fire*.
9. BURNS. *History of Nigeria*.
10. *Cambridge History of the British Empire*.
11. MOMMSEN. *History of Rome*.

12. BRYCE. *Holy Roman Empire.*
13. CHURCHILL. *The World Crisis: the aftermath.*
14. CCULTON. *The Black Death.*
17. DICKINSON. *The Dublin of Yesterday.*
18. HOME. *History of London.*
19. STANARD. *Story of Virginia's First Century.*
20. MILLS. *The Great Days of Northumbria (A.D. 590-804).*

(4) *Test in Theory.* Answer the following in not more than forty minutes without reference to your text-books:

"Classify by subject and then by form." Define the terms, and the difference between "outer" and "inner" form, and then explain the statement, with examples.

CHAPTER XXXIII

XI.—900 HISTORY AND ITS COLLATERALS

II.—BIOGRAPHY, ETC.

294. Biography is, of course, the history of individuals or groups of individuals as persons, and not as forming a nation. The distinction is a practical one merely because in many cases the life of the individual and that of his race or nation are so bound up that it is difficult to separate them without loss to the national history. This is the case in such a book as Morley's *Oliver Cromwell*, which is obviously as much the history of a certain period of English history as is any more distinctively named monograph on the subject.

295. Biography has two main form sub-divisions in Dewey. (1) General and Collective by Localities; and (2) Individual and Collective by Subject. The first of these is for collections of lives which will not go under any other heading; thus *Eminent Englishmen* is 920.042; *Famous Italians*, 920.045; but not *Lives of the Engineers*, or *Lives of the Great Artists*, which obviously deal with men devoted to special subjects. "General and Collective by Localities," it will be noted, is not to be used

for lives of individual persons, but only for collections of lives.

The second is both for collections of and individual lives which have such special subject interest as is shown in the *Lives of the Engineers* just cited, and in individual lives such as the life of George Stephenson. When it is impossible to assign a special interest to the biographee or biographees, the book is to go at the general heading 920 without sub-division, except that .7 is added for women. The rest of 920-928 is "divided like the classification" up to a point. The sub-divisions of 921-923 are, however, a special, convenient, arrangement, which does not correspond to the sub-divisions of the classes 100, 200, and 300 in the main classification. From 923 to 928 the numbers are divided like the main classification; but the note against them tells us that it is seldom wise to go beyond four figures except for a large special collection, thus we get:

- 927.5 Vasari. *Lives of the Painters.*
- 927.3 Symmonds. *Life of Michael Angelo.*
- 927.8 Spitta. *Life of Bach.*

and so on. The large library *will*, as a rule, want to carry division further than this. There are special notes at various headings to be noted; i.e. (1) the further sub-division by nationality suggested at 923.1-923.8; (2) the fact that a teacher of a special subject goes with the subject and not with teachers unless he is more prominent as an educator; and (3) the important note to 928, *Biography of Literature*, where we are told to "class historians as miscellaneous authors and all other writers take the appropriate 'form number' from 810-899, in addition, of course, to 928"; thus 928.21 is an English poet, 928.32 a German dramatist, and so on.

296. Returning to more general considerations, the class biography here includes, we are told in the important note under the number 920, "autobiography, diaries, personal narratives, eulogies, biographic dictionaries, etc." But by one of the curious anomalies of the Decimal

System "letters" are not included. As "the man's life in the letters of the man" is much more important than a mere formal account of his life, this makes Dewey's biography class defective. Letters, as we have seen, are placed at 816, 826, 836, etc., under Literature merely by language, and are thus separated from the man and his work. This has led to the following rules being made:

(a) Place literary letters in Literature; i.e., those of Horace Walpole, Lady Mary Wortley Montague, etc.

(b) Place personal letters of a general character with the biography of their writer. When the letters of two correspondents are collected in one volume, place under the more important, or, if both are of equal importance, under the first-named on the title-page.

(c) Place letters on a special subject under the subject; i.e., Dufferin's *Letters from High Latitudes* in Travel under Spitzbergen.

297. The materials of which biography is made should go in this class with the individual concerned. An account of the personal relics of Sir Walter Scott, for example, his clothes, walking-stick, and so on, goes with his life. When a family is dealt with of which the same of one member constitutes the importance of the family, class under that member; i.e., Rawnsley's *Memories of the Tennysons*, placed under Alfred Lord Tennyson.

298. An adjustment of Biography made in many libraries is to use 920 and its divisions for *Collective Biography only*, to put Individual Biographies in a class noted B, and to arrange them within it in alphabetical order of the names of the persons biographed.

299. Another plan, permitted by Dewey (but not altogether satisfactory in a general library), is to number the biography with the subject it illustrates, ignoring 920-928 altogether, and thus to scatter biography throughout the classes.

300. All biography should be cross-referenced in the catalogue from the subject with which the biographee is identified.

301. The class Genealogy and Heraldry (929) deserves careful study, as it accommodates certain auxiliaries of history and biography, that puzzle classifiers at times. There is, however, no particular difficulty about it. 929·3 takes Parish Registers. 929·4 takes such books as Bardsley's *English Surnames*, Erkwall's *English River Names*, and Watson's *History of the Celtic Place Names of Scotland*. Town or county directories are also sometimes put at 929·4 with geographical sub-division; but these are better under the place in 914-919. Directories of trade names go under the trade.

FINAL HINTS AND CONCLUSION

302. The student who has followed this course faithfully has done severe and valuable work, such as has not before been exacted from students in this country; and he should now be equipped to apply the Decimal or indeed any classification to any type of library. It has been impossible to be exhaustive, and your ability to profit by Part IV of this book is dependent upon your knowledge of Parts I-III. I can only urge the student who has examinations in view to bear in mind the following hints:

(1) To revise the theory of the subject. A quick revision may be made by reading the chapter on Classification in Jevons's *Principles of Science*, my paper on *The Grammar of Classification*, Richardson's *Classification*, and Brown's *Manual of Library Classification*, in this order.

(2) Go through the lessons as a whole and revise the principles and decisions.

(3) Illustrate answers, wherever possible, by examples. *This is most important.*

(4) In the examinations keep the following points clearly in mind:

They are to show your knowledge of *method* rather than to add to the total sum of knowledge on the matter. Thus, if you are to prepare a classification scheme, it must show main classes, generalia, subject and local divisions; it must have an orthodox notation; it must possess an

index; it should be set out in summary at the beginning; and it should be prefaced by an introduction explaining the scheme and how to use it.

(5) In your answers, as in your writing, everywhere, "be brief, be brief, be not too brief."

303. It only remains for me to wish the reader good fortune, not only in his examinations, but also in the future pursuit of this subject, which, as Richardson has told us, is the highest art of the librarian.

304. READINGS.

DEWEY. *Decimal Classification*.

Re-read the Introduction.

Be sure that you have an adequate idea of the meaning of all terms used in the main classes and main divisions, and of as many other terms in the tables as you can muster.

MERRILL. *Code for Classifiers*, pp. 102 to the end.

Look up any articles you can find on the practical guiding of classified libraries.

Revise further any readings in the earlier lessons which you do not remember clearly.

Check your memory to see if you retain the summaries that you were directed to learn.

305. QUESTIONS.

(1) Biography may be arranged in several ways. Explain them.

(2) Classify by Dewey:

1. GIBBONS. *Memoirs of Pious Women*.
2. LOWES. *Worthies of Sussex: sketches of eminent natives or inhabitants of the county*.
3. MCCABE. *A Biographical Dictionary of Modern Rationalists*.
4. THOMAS. *Universal Dictionary of Biography and Mythology*.
5. DRAKE. *Saints and Their Emblems*.
6. GIBBINS. *English Social Reformers*.
7. MOLLETT. *The Painters of Barbizon*.
8. JOHNSON. *Lives of the English Poets*.
9. BURKE. *Prominent Families of the United States of America*.
10. O'HART. *Irish Pedigrees*.
11. *Registers of St. Helen's Church, Bishopsgate, London, 1575-1837*.

12. EDMUNDS. *Traces of History in the Names of Places.*
13. NOBLE. *A History of the College of Arms.*
14. FOX-DAVIES. *Book of Public Arms.*
15. STRACHEY. *The Later Letters of Edward Lear.*
16. MASSON. *Napoleon and His Coronation.*
17. ESCOTT. *Masters of English Journalism: a Study of Personal Forces.*
18. HULME. *Flags of all the Nations.*
19. BARBER. *British Family Names.*
20. TERRY. *Index to the Papers Relating to Scotland described or calendared in the Historical Manuscripts Commission's Reports.*

(3) Classify by Dewey:

1. WILLEMENT AND FOSTER. *Banners, Standards and Badges.*
2. PASCOE. *Our Actors and Actresses.*
3. *Letters from George Moore to Ed. Dujardin, 1886-1922.*
4. HONE. *William Butler Yeats (Irishmen of To-day Series).*
5. OTTMAN. *Herbert Booth, Salvationist.*
6. CURTAYNE. *Saint Catherine of Siena.*
7. CHER. *Charlotte Corday.*
8. COCHRAN. *Secrets of a Showman.*
9. COLVIN. *Life of General Dyer.*
10. *The Diary of Countess Tolstoi.*
11. DRINKWATER. *Mr. Charles, King of England.*
12. SPURR. *Life and Writings of Alexandre Dumas.*
13. FITZGERALD, EDWARD. *Letters.*
14. VICTORIA, QUEEN. *Letters.*
15. FRANKFURTER AND JACKSON. *Letters of Sacco and Vanzetti: the case, prisoners' speeches, etc.*
16. GIBBON, EDWARD. *Journal.*
17. GREEN. *Dick Byrd, Air Explorer.*
18. JERROLD. *Five Queer Women.*
19. MANN. *Tombs and Portraits of the Popes of the Middle Ages.*
20. *The Later Letters of Lady Augusta Stanley.*

(4) Describe the classification guides, mechanical and other, you would provide in an open-access library.

(5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your text-books:

- (a) Compare the merits of rigid and relative locations.
- (b) Criticize the axiom that it does not matter where a subject appears in a classification so long as it is indexed.

CHAPTER XXXIV

TEST EXAMINATION.—II

Time allowed—3 hours in each part

306. THEORY.

(1) Make out a scheme for the sub-division of Dewey's 649.1 Advertising.

(2) What are the *disadvantages* of systematic classification, and how may they be overcome or minimized?

(3) Describe the main characteristics of the Library of Congress classification, especially compared with the Dewey Classification.

(4) Describe and discuss the History and Geography and Biography classes of Brown's Subject Classification.

(5) In the arrangement of books in a library the strict classification sequence is sometimes not adhered to, for various purposes. Give examples of such "broken order," and discuss the advantages and disadvantages in each instance.

(6) Describe as fully as you can the methods you would adopt to enable readers to find subject material in a library, part classified on the shelves (open access), part arranged by size in stack rooms.

PRACTICAL.

Classify by Dewey:

COESTER, A. *The Belles-Lettres of Uruguay: a tentative bibliography.*

Based for the most part on the records of the National Library in Montevideo.

[NOTE.—*Bibliography* of a special literature; South American, probably Spanish.]

HERVEY, H. J. A. *The European in India.*

The chapters study and picture Europeans by class, e.g. the Military man, Sailor man, Merchant, Pressman, Crank, the Uncharitable man, the Globe-trotter, etc. Part II deals with women, as the Attached Miss, the Grass widow, the Goody-goody woman, etc.

[NOTE.—Description the only useful place.]

ROSE, W. (ED.). *An Outline of Modern Knowledge.*

This book attempts to present a clear picture of the present achievements of human thought and knowledge and contains chapters on Psychology, Psycho-Analysis, Sex, Economics, Finance, Archæology, History, Painting, Sculpture, Politics, Industry, Internationalism, Literary Criticism, Science, Physics, Astronomy, Cosmogony, Mathematics, Anthropology, Ethnology, Biology, Religion, Philosophy, Geography, Architecture, and Music.

[NOTE.—A generalia book.]

ROBIN, P. A. *Animal Lore in English Literature.*

The object is to explain the many allusions in English literature to old beliefs and fancies, about animal creation. The origins of sayings and similes that have been handed down through ancient, classical and Early English literature and have taken shape and gathered strength from the superstitions of men and the tales of travellers.

[NOTE.—Literature is affected, not animals.]

BOUMPHREY, G. M. *The Story of the Wheel.*

Interesting information on the origin of the cartwheel, the potter's wheel, the reciprocating engine, the dynamo, the turbine, the lathe, and other applications of wheels.

[NOTE.—Mechanics not engineering.]

BRIGGS, MARTIN. *The Homes of the Pilgrim Fathers in England and America.*

On the houses the Pilgrim Fathers built during the first sixty years after they landed in Massachusetts in 1620. Mr. Briggs has convinced himself that early American architecture was derived from the south-eastern counties of England, especially Essex. In this book he shows many examples of parallelisms in design and structure between the mills, farms, and cottages of England, and similar buildings erected by the first settlers. He shows to what extent Dutch methods influenced them, and describes the conditions in which the earliest building activities were carried on in America.

[NOTE.—Domestic architecture of North America is the subject influenced and therefore the best place.]

DALE, T. C. *The Inhabitants of London in 1638.*

From a MS. in Lambeth Palace Library, it contains the names of 15,000 to 16,000 householders in the City of London, together with the rent they paid. Arranged according to parishes.

[NOTE.—Interest to-day is mainly London history; might be cross-referred from Names.]

BAKER, E. A. *Caving: episodes of underground exploration.*

The caverns and potholes of Yorkshire, Derbyshire and Somerset, of Ireland, the Cevennes, the Pyrenees, and other Continental cave regions.

[NOTE.—This is an outdoor sport, equivalent to mountaineering, and should class there, although it is not noted in the Decimal Classification. The only place provided is in Geology, but this should really be a cross-reference.

CAMPBELL, A. M. *The Black Death and Men of Learning.*

The effect of the plague on medicine, education, astrology, mathematics, physics, political thought, law and the Church.

[NOTE.—Few readers would expect this under epidemics although the Decimal Classification mentions it there. Better in history of Europe.]

PARTON, B. *Cleaning the Face of England.*

The author points out that in town and country alike there are disfiguring accumulations of rubbish, disused and derelict buildings, unused spaces allowed to remain unscavenged, etc., and suggests that the unemployed men should be detailed for this salvage and sanitary work.

[NOTE.—Sanitation: or possibly clearing of sites in architecture.]

CAPEY, RECO. *The Printing of Textiles.*

Methods of printing (hand block, block printing by machine, etc.), stencilling, preparations of the cloth, mixing of colours, styles of printing, Batik, treatment of the cloth after printing, and dyeing.

[NOTE.—Part of the process of textile manufacture, but may also by cross-reference go under bleaching and dyeing.]

EARELY-SIMPSON, L. *Derby and the Forty-Five.*

An examination of the crisis of the Jacobite march into England in 1745, which had Derby as its setting. Deals with political and social Derby in the eighteenth century, Derbyshire Jacobites, England and the Jacobites, the march to Derby, the Prince in Derby, and the decision to retreat.

[NOTE.—The ordinary rule is that local place in history takes precedence over national, but this is qualified by the question: to whom will it be useful?; and in a general library we think to the student of the '45 rising as a whole. Class in English history, divided by period, and cross-refer from Derby.]

FINCH, WILLIAM COLES. *Watermills and Windmills: a historical survey of their rise, decline, and fall as portrayed by those of Kent.*

[NOTE.—History of subject goes with subject, in this case with Kent local sub-division: i.e. in Engineering. Put under watermills and cross-refer from windmills.]

APPENDIX I

PRACTICAL CLASSIFICATION BY THE COLON CLASSIFICATION¹

The object of classification is to translate the specific subject of a book (or other item) into terms of the notation of the system of classification used and in this respect the Colon Classification is similar to all others. Therefore, the preliminary steps in classifying are essentially the same as those given already for classifying by the Decimal Classification, namely:

- (i) Determine the specific subject of the book.
- (ii) Analyse the specific subject into its major components. (Phase analysis.)
- (iii) Determine the main class which embraces the specific subject or the most important component of the specific subject.

These are not quite as stated on page 207 Para. 191, and a few words of explanation are necessary.

(1) As regards the first step, it is essential to emphasize that the object of classification is to translate the *specific* subject of a book (or other item) into terms of the notation. If we do not emphasize this point we shall find ourselves classifying a subject under a head of greater extension. During a lecture on classification, students were asked to give the subject of a book entitled "Quadratic equations." Some said "Mathematics" others "Algebra" yet others "Equations," and when pressed for its *specific* subject there was silence until one student at length observed correctly that the specific subject was none other than the title of the book. Specific subjects cannot always be expressed in one or two words, and are not always expressed in the title of the book, but that must not deter us from expressing the specific subject either mentally or—to begin with—by actually writing it down, so that the notation which we finally assign to the book expresses

¹ By A. J. Wells

exactly the meaning of its specific subject. Here is one more example: Consider the specific subject of a book entitled "The influence of climate on language." It is not correct to say that the specific subject is "language"; it is, in fact, "The influence of climate on language."

(2) Step two is given on page 207 as "What is the form in which the subject is presented?" But form is only one way of many in which a specific subject may be presented. Specific subjects are often compounded of two or even more major elements which must be analysed before the correct notation can be assigned. For example, the specific subject "A history of mathematics" has two major components "mathematics" and "history." Both of these must be represented in our notation. This of course is what is meant by the rule implied in "What is the form in which the subject is presented?" But in our second example "The influence of climate on language," we also have a specific subject of two components, namely "language" and "climate" and both must be represented in our notation. So also with such a specific subject as "Analysis for engineers." The two major components are "analysis" and "engineers" both of which must find expression in our notation. Ranganathan calls these major components "Phases" and he says that subjects such as "analysis for engineers," "The influence of climate on language" and "The history of mathematics" are subjects of two phases. Two broader subjects in each case have been assembled from different parts of the field of knowledge to combine into the specific subjects expressed in their titles. And for greater convenience he calls that phase which is the main subject the primary phase and that which is the subsidiary subject the secondary phase.

We must, therefore, always decide, as a preliminary to classification, whether the specific subject is single-phased or two-phased¹ (that is an assemblage of two parts of the field of knowledge).

¹ Some specific subjects may have three or even four phases.

(3) Step three is common to all classifications. Having determined the specific subject and analysed it into its "phases"—if more than one—it becomes necessary to decide under which main class the specific subject falls. In the case of "the history of mathematics" the main class is clearly "mathematics;" in the case of "Analysis for engineers" the main class is again "mathematics", (though in the Decimal Classification it is often put under "engineering") and in the case of "The influence of climate on language" the main class is "language."

From this point onwards, owing to the nature of the schedules, classification by Colon differs fundamentally from classification by all other schemes. The rules on page 207 of this book tell us to proceed from the main head through the divisions and subdivisions until the specific subject of the book is found. This, of course, assumes that all subjects have been enumerated in their correct sequence in the schedules, and that the work of a classifier is only a matter of singling out, by this process of reading through the divisions and subdivisions of the correct main class, the specific subject of the book in hand. But experience soon proves it not such a simple matter since many specific subjects have not in fact been enumerated in the schedules, and of course, no new ones will be found there.

With Colon it is not possible to proceed from the main head through the divisions and subdivisions to the specific or nearest specific head since Colon does not enumerate specific subjects in this way.

Having decided on the phases and the main class to which each phase belongs, the Colon classification, since it consists of elements which make up specific subjects, next requires us to analyse each phase into its elements (or facets as they are called). This is not very difficult since the elements which we must look for are indicated by the facet formula at the head of each main class.

Let us take some examples and follow the processes involved first in classifying by the Decimal Classification

(serving as an example for all enumerative schemes) and then by Colon.

EXAMPLE 1. Emil Ludwig: The Son of Man.

Decimal Classification.

1. Specific subject: Christ, the founder of the Christian religion.
2. Analysis of Phases: Single-phased.
3. Main class: Religion.
4. Proceeding to the main class 200 Religion, we find on reading down the divisions that Christology is given the number 230 and lives of Christ 232.9 which we decide is the number expressing the specific subject of the book.

Colon Classification.

Steps 1 to 3 as for Decimal Classification.

4. Proceed to main class Q Religion. Here we find a formula: Q [R]:[P]

where Q=main class Religion.

R=The specific religion involved.

P=The specific problems involved.

This formula indicates that there are two characteristics of division which may be applied simultaneously to the main class Q Religion, and we must expect to find both divisions represented in any religious subject.

(5) We therefore analyse the specific subject "Christ the founder of Christianity" into terms of these two characteristics of division (these are called facets by Ranganathan) thus:—

Q=Main class Religion.

R=Specific religion involved—Christianity.

P=Specific problem involved—Christ the founder that is:—

Q [Christianity]:[Founder of Christianity].

(6) We now select from the list of divisions given under the characteristic R the number for "Christianity"—6

and from that given under the characteristic P the number for "the founder of the religion"—33.

By substitution we have

Q[6]:[33].

(7) Remove the brackets and the class number is Q6:33.

If this seems involved for so simple a subject, it should be remembered that the whole of this is done subconsciously by an experienced classifier. It has been laid out here to explain the method. Beginners should continue to use this drill until the technique is mastered.

EXAMPLE 2. The influence of climate on language.

Decimal Classification.

1. Specific subject: Influence of climate on language.

2. Analysis of Phases: 2-phased [language] [influenced by climate].

3. Main class: Language.

4. Turning to the Decimal Classification Main class 400 Language, we find little to help us, but we remember that table 2 at the end of the schedules offers the relation sign 0001 which will enable us to couple the secondary phase "climate" to the main class.

So we have:—

400 Language in general.

0001 in relation to.

We look now for the secondary phase subject "climate." This we discover is a subdivision of geology under the main class 500 Pure Science. Reading through the schedules from division to section we find the number 551.5 "climate."

We can now substitute the D.C. numbers in the following formula:

Primary phase	link	secondary phase
[Language]	[in relation to]	[climate]
400	0001	551.5

equals 400.015515 "Language in relation to climate" which is not quite the same as "Language influenced by climate," but as near as D.C. permits.

Colon Classification.

Steps 1—3 as for Decimal Classification.

4. Turning up main class P "linguistics" for the subject of the primary phase, we find the formula:

P[L]:[S] [P]:[E].

where L=the specific language involved.

S=the specific stage of the language involved.

P=the specific problem involved.

E=the specific linguistic element involved.

Thus we see that there are four characteristics of division which may be applied simultaneously to the main class P "language".

We must now decide which of these elements, L, S, P and E, are contained in the specific subject. Let us consider them separately.

I. *Language.* No specific language is studied here, hence there will be no number for it and it will be left blank.

II. *Stage.* Languages normally have three stages Old, Middle and Modern, but no specific stage is studied here, so this also will be left blank.

III. *Problem.* The specific problem is the influence of climate, but as it is not commonly a linguistic problem it will not be found listed with the other problems involved in linguistics, therefore, this too is left blank, for as we shall see, the secondary phase will take the place of the Problem number.

IV. *Element.* No specific part of speech is studied here and like all the foregoing facets it will be left blank. So far then we have reached the point:

P [Vacant] : [Vacant] [Vacant] : [Vacant].
or omitting all vacant facets.

P.

Now if we were to examine the secondary phase we should have to work through the steps for the main class U Geography (not Geology as in D.C.) as we have done for the primary phase and we should find that "climate" is represented by U287. We now have our primary and secondary phases.

The connecting symbol used to represent "influenced by" is 28.

Thus joining the two phases by means of this symbol, we get

P28U287—"Language influenced by climate,"
which exactly represents the specific subject of the book.

Note.—A lot of paper has been covered in arriving at the obvious conclusion that language in this case is treated quite generally, but again it must be remembered that a trained classifier performs these operations subconsciously. They are set out in full here, in order to show students the correct method by which to canalize their classificatory process. This method is equally valid whether we are classifying by D.C., Brown, L. of C, Bliss—or Colon.

Use the Colon formula for a subject to arrive at the possible characteristics of division involved in the subject and then examine the D.C. (or other) schedules with these in mind. We shall not always find that the characteristics of division have been applied in the same order in all classifications, but we shall approach the schedules conscious of the characteristics of division which may be involved. We shall thus find the process of arriving at the correct number, when given, or the correct place at which to make a new number, when not given, is much easier.

In the following worked examples some of the steps are given for the Colon classification and for the Decimal Classification.

EXAMPLE 1. The physical basis of geography.

Step 1. Specific subject—physical geography.

Step 2. Analysis of phases—single-phased.

Step 3. Main class—Geography.

Colon Classification.

Step 4. U—Main class Geography.

Facet formula—U [P] : [G] : [C].

where P=specific problem involved.

G=specific geographical area involved.

C=specific chronological period involved.

Step 5. Place the parts of the specific subject within appropriate brackets:

U [Physical geography] : [Vacant] : [Vacant].

Step 6. Substitute the appropriate numbers from the schedules: U [2] : [].

Step 7. Remove brackets:

U2—Physical Geography.

Decimal Classification.

Step 4. 550—Main class Geology (!).

Step 5. proceed through subdivisions to specific subject:
551—Physical geology (including physical geography).

Example 2. Psychology of character.

Step 1. Specific subject—psychology of character.

Step 2. Analysis of phases—single-phased.

Step 3. Main class—Psychology.

Colon Classification.

Step 4. S—Main class Psychology.

Facet formula S [E] : [P].

where E=the specific entity (person or group) involved.

P=the specific psychological problem involved.

Step 5. Place the parts of the specific subject within appropriate brackets:

S [Vacant] : [Character].

Step 6. Substitute the appropriate numbers from the schedules: S [] : [74].

Step 7. Remove brackets:

S : 74—Psychology of Character.

Decimal Classification.

Step 4. $\left. \begin{matrix} 130 \\ 150 \end{matrix} \right\}$ main class Psychology.

Step 5. It is difficult to proceed through the subdivisions here. There is little but memory to help us in selecting the D.C. number. Since character is a matter in personal psychology we select a number in main class 130. The best appears to be 137—Individual Psychology, Personality.

Example 3. Formative factors in character: a psychological study in normal development of childhood.

Step 1. Specific subject—Character formation in children.

Step 2. Analysis of phases—single-phased.

Step 3. Main class—Psychology.

Colon Classification.

Step 4. S—Main class Psychology.

Facet formula S [E] : [P].

where E=specific entity (person or group) involved.

P=specific psychological problem involved.

Step 5. Place the parts of the specific subject within appropriate brackets.

S [Children] : [Character].

Step 6. Substitute the appropriate numbers from the schedules: S [1] : [74].

Step 7. Remove brackets:

S1:74—Character formation in children.

Decimal Classification.

Step 4. $\left. \begin{matrix} 130 \\ 150 \end{matrix} \right\}$ main class Psychology.

Step 5. Again it is difficult to proceed through the subdivisions. It is not possible in the Decimal Classification to show both facets, children and character, together. We must choose between 136.7 Child Psychology or 137 Individual Psychology, Personality.

Example 4. Botanical features of North American deserts.

Step 1. Specific subject—Botany of North American deserts.

Step 2. Analysis of phases—single phased.

Step 3. Main class—Botany.

Colon Classification.

Step 4. I—main class Botany.

Facet formula I [N] : [P] : [G].

where N=the specific natural group of plant involved.

P=the specific botanical problem involved.

G=the specific geographical area involved.

Step 5. Place the parts of the specific subject within appropriate brackets.

I [Vacant] : [Ecology] : [Deserts of N. America].

Step 6. Substitute the appropriate numbers from the schedules: I [] : [5] : [1911-71].

Step 7. Remove brackets:

I : 5 : 1911-71—Plant Ecology of Deserts of N. America.

Note 1. Ecology—the study of plants and animals in relation to their physical surroundings.

Note 2. The geographical number is made up of the two parts 1911 deserts and 71 N. America, both taken from the geography schedule and linked by a dash (—).

Decimal Classification.

Step 4. 580—Main Class Botany.

Step 5. Proceed through the subdivisions to the specific subject.

581.5 Ecology.

581.52 Environment.

581.526 Formational ecology.

581.5265 Xeric formations.

581.52653 Desert and semi-desert formations.

In order to show the particular geographical area, we should have to treat the subject as two-phased and bring in the history form number 0973. The resulting number 581.526530973 would mean "the history of desert botanical formations in N. America," which is not the same as the subject of the book. We are inclined to leave out the North American aspect of the specific subject and render it incompletely as 581.52653.

Example 5. Standard practice tests in elementary arithmetic.

Step 1. Specific subject—as title.

Step 2. Analysis of phases—single-phased.

Step 3. Main class—Education.

Colon Classification.

Step 4. T—Main class Education.

Facet formula T [E] : [P] : [S].

where E=the specific person or group taught.

P=the specific problem involved.

S=the specific subject (only used when the problem involved is 4 'Curriculum' or its sub-division).

Step 5. Place the parts of the specific subject within appropriate brackets.

T [Elementary education] : [Achievement tests] : [Arithmetic].

Step 6. Substitute the appropriate numbers from the schedules: T [15] : [472] : [B1].

Step 7. Remove brackets:

T:15:472:B1.

Note: B1 is the number for Arithmetic taken from the Mathematics schedules.

Decimal Classification.

Step 4. 37—Main class Education.

Steps. It is impossible to proceed through to the specific subject. The various characteristics of division have become mixed in this class and much cross division results. We must choose between 372.7 "Elementary Arithmetic" and omit that part of the specific subject contained in "Standard practice tests," or use 371.26 "Marking systems, Tests," and omit both "Elementary Education" and "Arithmetic."

By treating the subject as two-phased: "Achievement tests in relation to Arithmetic," we could link "Arithmetic" with 371.26 "Tests" by means of 0001 thus:

371.260001511.

which is "Achievement tests in relation to arithmetic" and still omits that part of the specific subject, "Elementary Education."

Example 6. The causes of economic fluctuations.

Step 1. Specific subject—Business cycles.

Step 2. Analysis of phases—single-phased.

Step 3. Main class—Economics.

Colon Classification.

Step 4. X—Main class Economics.

Facet formula X [B] : [E] : [G] : [C].

where B=the specific business involved.

E=the specific economic problem involved.

G=the specific geographical area involved.

C=the specific chronological period involved.

Step 5. Place the parts of the specific subject within appropriate brackets:

X [Vacant] : [Business cycles] : [Vacant] : [Vacant].

Step 6. Substitute appropriate numbers from the schedules:

X [] : [74] : [] : []

Step 7. Remove brackets:

X:74.

Decimal Classification.

Step 4. 330—Main class Economics.

Step 5. Proceed through the subdivisions to the specific subject:

338—Production, Economic organization.

338.5—Prices, Costs, Business cycles.

338.54—Business cycles.

APPENDIX II

The examinations in classification of the University of London School of Librarianship and of the Library Association are regarded as approximately equal tests; and it will be useful if candidates for either examination use the questions subjoined as touchstones for their study. They are drawn from a collation of those asked at the successive examinations in the past thirty years. It is obvious that classification theory is a limited subject, on which the ringing of changes year after year is a real achievement of the examiners. Questions, therefore, which repeat ideas without some sort of difference have been omitted.

The L.A. examinations in our subject are outlined in the Preface but a few hints may be helpful, especially for those who are new to them. Students should watch the *Library Association Record* for announcements of changes in the requirements of the examiners; the syllabus and its interpretation are under constant scrutiny, although at least two years' notice is given of any major change.

In the Registration Examination, Group A, part 1, six questions out of nine set have to be answered in three hours. Not more should be attempted and it is advisable to answer all six. Copies of papers set in former years can be purchased from Chaucer House.

The instructions both on the set paper and on the cover of the MS. book in which answers are to be written should be followed implicitly; marks are often lost for want of this elementary precaution; for example: when the candidate's number is not written legibly on the front of the MS. book; when an answer is not given, the question number at its beginning and on subsequent pages dealing with it; and when each answer is not begun on a new page.

Further points are: avoid the extremes of brevity, and prolixity which is worse; irrelevancy is a common fault; do not write telegraphese, but be clear, concise and to the point, as words will not conceal want of knowledge. Be careful in your

composition and punctuation and, as part of your preparation, cultivate a readable handwriting. Examiners suffer much from the spidery hieroglyphics which some students offer them and cannot be expected to hold high opinion of their writers.

As the writer of a text-book, I would give a practical warning—*Don't use text-book examples; use similar ones of your own.* The examiners are weary of reading hundreds of papers about the arrangement of tables, chairs, coins, dogs, and houses, which appear in earlier editions of this book. They will like rags, used in a smaller book, no better. They can only be sure that you have really understood the text if you can apply the principles to other examples. If you cannot make examples of your own, you are not prepared to take the examination. There is too much parrot-like repetition of text-book words in modern answers.

In part 3 it will be an advantage to use the forms of entries which are given at the end of the official syllabus; they are most helpful. The paper sets five full descriptions of books with explanations of the character of each of them. Accurate catalogue entries with the necessary added entries, references and other tracings and, where appropriate, an annotation, are to be made of each of them. Each book is to be classed fully by the scheme the candidate has elected to use. Alternative numbers may be given but it should be recognized that the task of the classifier is to *decide* where a book should go and to give the number for that place first.

2. If the student had worked carefully through Part IV of this book, he should now be able to meet any ordinary practical classing problem. Examples occasionally occur that seem to defy all rules, and for which there are no obvious places in Dewey or indeed any system. When they occur, the answers are no doubt judged as exercises in the use of common sense in making a choice of class-numbers. There can be no rule here except that which is implied in the now familiar questions: (1) what is the author's intention? (2) for what reader is the book written?

A REPRESENTATIVE SELECTION OF THE QUESTIONS SET AT THE
UNIVERSITY OF LONDON AND THE LIBRARY ASSOCIATION
EXAMINATIONS IN CLASSIFICATION.

327 *On the Logical Rules, Order and Construction of Classifications.*

1. Define classification and explain in what respects it differs from cataloguing.

2. What are the Predicables of Aristotle as now understood, and what bearing have they on systems of classification?

3. What is meant by extension and intension of terms, and what is their bearing upon classification?

4. "In classification knowledge should be organized in consistency with the educational and scientific consensus" (Bliss). Explain and comment on this statement.

5. What is meant by the hierarchy of a classification? Explain its parts and the method by which it is constructed.

6. List the criteria of a good book classification and comment on them.

7. How far is a classification of knowledge likely to differ from a classification of books? Give a typical example of each, bringing out the points of difference.

8. Name some of the differences between philosophical classification and bibliographical classification.

9. Explain what is meant by "natural order" and by "artificial order": discuss and give examples of each as applied in classification.

10. A classification arranged by accidental characteristics of the things classified would not be so likely to be satisfactory as one arranged by natural characteristics. Demonstrate this with an accidental and a natural arrangement of a subject.

11. If you were planning a classification scheme for a botanical or a zoological library, would you follow an artificial or a natural arrangement? Explain fully why the method you select is better for the purpose in hand.

12. It is a necessary part of a classification table that only *vertical* relations can be shown. Discuss the disadvantages of such a limitation.

[This is a badly set question. It means that the terms in a classification can be shown vertically only, not the relations.]

13. Insert the necessary modulating terms between the following headings:

(1) The World—Ascent of Kamet by the Smyth expedition, 1931.

(2) Useful Arts—Traffic Signals.

14. State what is meant by evolutionary progression in classification, and give an example from some system devised on this plan.

15. "A perfect arrangement of books is a perfect arrangement of the material of knowledge (subjects) with such practical adjustments (general and form classes, etc.) as the physical form of books demands." Explain this statement.

16. "It is illegitimate to employ two principles of classification, and, when one fails, to have recourse to the other. That is a procedure which must at once give rise to cross-divisions." Illustrate this passage.

17. Demonstrate that the convenience of the user is the essential of a bibliographical classification.

18. What is meant by "form" as compared with "subject" in classification?

19. Explain the following terms: Hierarchy, Schedule, Relative Index, Cross-Division.

20. Is a uniform system of classification for all libraries possible, and, if so, advisable?

21. Criticize the following statement: "So long as a topic is properly indexed, it does not matter where it appears in the table of a classification."

22. How far should scientific terminology be made use of in the classification of a general library? Discuss some alternative headings.

23. Discuss the advantages and disadvantages of merging history, geography, and topography in one class.

24. Show how the methods of the classifier are applied practically by (a) the business man organizing the work of his factory or office, or (b) the physician when diagnosing a patient's case.

328 *History of Classifications.*

25. The Bliss Bibliographic scheme is based on "the educational and scientific consensus." What does this mean?

26. Name any two published schemes of classification other than those by Dewey, Cutter, and Brown, ancient or modern;

and state succinctly date, author, and the characteristic features of each.

27. Name three important libraries classified on different systems, and describe briefly any special features of their classification.

28. Trace briefly the history of Bibliographical Classification from Callimachus to Brunet.

29. Describe the logical ideas or principles underlying the order of the main classes of the classification scheme of Francis Bacon, and of the Decimal scheme.

30. What are the main features of the French scheme of book classification as settled by Brunet and others?

31. Write a history of decimal classification.

32. In applying the Expansive Classification to a library, where great growth is expected, it is important not to adopt one of the first few expansions of this classification. Explain why.

33. Write the history of the Library of Congress Scheme, and show its derivation, if any.

34. If you had to reduce the ten classes of Dewey to five, which classes would you throw together; and if you had to expand it to twenty, how would you divide? Give reasons.

35. Comment on the rule of evolutionary order as applied to the Dewey 700 (Fine Arts) Class.

36. Indicate briefly the difference between the headings (130) Mind and Body and (150) Mental Faculties in the Dewey Decimal Classification; also between (140) Philosophic Systems and (180, 190) Ancient and Modern Philosophers.

37. Wherein does the Classification *Décimale* of the Institut International de Bibliographie differ from the Dewey Classification? Explain briefly the special features of the former.

38. Write a short account of the "Subject Classification."

39. What do you believe to be the significance of the Bibliographical System of Henry Evelyn Bliss?

40. A certain classification includes under the heading *Generalia* the following divisions: *Generalia*, *Education*, *Logic*, *Mathematics*, *Geometry*, *Graphic* and *Plastic Arts*. To what other parts of the classification might some of these headings be removed, and state your reasons for suggesting such alterations.

41. Discuss briefly any scheme for the classification of Library Economy.

311. *Notation and Auxiliaries of Notation.*

42. Define notation, with examples from three systems of classification, and comment upon the axiom: "A pure notation is to be preferred to a mixed notation."

43. Give a brief account of the influence of notation upon the construction of classification schemes.

44. What are the characteristics of a perfect notation? How far are these met in the Decimal, Expansive, and Subject classifications?

45. The flexibility of a notation is its essential feature. Explain.

46. Is it essential that a classification should provide class-marks for every conceivable topic, or indeed for any topic that has not been treated in print? Justify your answer.

47. Describe any system of classification which is known to you which is not furnished with a minute notation, and show by examples how you would supply the deficiency.

48. Explain the chief characteristics of the Dewey notation, and give examples of its divisions and sub-divisions.

49. Describe the chief variations in notation between the original Decimal classification scheme and the extended scheme of the Institut International de Bibliographie.

50. When speaking of a classification scheme what do you mean by "mnemonic value"? Give examples. To what extent is this factor of importance?

51. What forms are designated by the following marks used in the Brussels Extension of the Dewey classification: (01 to 09), (2 to 9), " ", =2, :, A-Z?

52. Describe the provision made in any modern scheme of classification for the sub-division of subjects by means of marks indicating forms and other qualifications.

53. What is the common factor in the following Decimal Classification numbers: 804, 808.4, 808.84, 820.4, 824? Give examples of books for each number.

54. Analyse the following Dewey classification marks (showing, in each case, the make-up of the number and the specific subject or form indicated: (a) 016.55798, (b) 331.1378213, (c) 597.0925, (d) 891.63104, (e) 929.79601.

55. Give an example in a modern systematic classification of the use of alphabetical order, and state in what circumstances it may be preferable to any other.

56. Describe the means provided in the Decimal, Expansive, and Subject classification schemes for obtaining alphabetical and chronological order within the limits of a topic.

57. In what way or ways may book-numbers be used to indicate a further *subject* arrangement after a systematic number has been applied.

[This question admits only of the answer that if the systematic number means the most minute one possible, no further *subject* division or arrangement can be made. The *ultima species* cannot be divided.]

58. Describe and criticize the notation of the Library of Congress scheme.

59. Discuss the advantages and disadvantages of adding Author Marks after books have been classified by subject.

60. Explain the Cutter Author Marks. How is their function performed by other devisers of author marks?

61. What are the Categorical Tables in the Subject Classification? How are their functions performed in other schemes, and to what extent?

329 *The Practical Application of Classification to Books, Shelves, and Catalogues.*

62. Draft (in outline) a scheme of classification for a collection of books upon (a) Prehistoric archæology; or (b) The printing arts; or (c) Library economy.

63. Draw up a table for the minute classification of a collection of books on London, based on the Dewey class mark 942.1 and showing how you would sub-divide it.

64. Make a table for further arranging a miscellaneous collection of views of a seaport town.

65. Assume that you have been engaged to classify a library by Dewey. Write a brief essay showing how you would proceed.

66. What principles affect the extent to which sub-divisions of a classification should be used?

67. Discuss the following rule of classification: "Classify by topic; then by form; except in pure literature, where form is paramount." Tabulate the reasons for and against arranging pure literature, irrespective of form, chronologically by authors.

68. What is meant by "Broken Order"? Give examples of it.

69. If you were asked to classify Haldane's *Pathway to Reality*, how would you proceed to ascertain the specific subject of the book?

70. In classifying a book, entitled *Portraits of French Kings*, which of the following characteristics should be selected to determine its place—Standpoint, Language, Literary Form, Specific Subject?

71. How would a collection of Folk Songs, with the music of the melodies only, be classified by the Decimal and Subject systems?

72. What are the chief qualifications (including character traits) that should be possessed by a library classifier?

73. The following places in the Decimal Classification are all for books dealing with "silver," treated from various different standpoints. State what type of books would go under each and give examples, real or imaginary: 546.57, 669.2, 622.34, 332.41, 553.42, 739.

74. In what division of the Dewey classification would you put a collection of regimental histories of the British Army, including its auxiliaries, and how would you arrange the collection?

75. State concisely the arguments for and against dispersing a set of author's works when classifying; take Carlyle's Works as an illustration.

76. What is the function of the Index in the process of classifying? In your answer describe the process.

77. "Index all classification decisions." What does this mean? Explain the various methods of doing it.

78. In how many sizes would you arrange a classified library so as to reduce to the minimum the shelf space required, and how would you differentiate the sizes?

79. Describe a scheme for the adequate "guiding" to the bookshelves of an open-access lending department.

80. What guides are necessary, or desirable, to the classification of an open-access reference library?

81. Give models of class, tier, and topic guides in a classified library.

82. Describe two methods of marking the backs of books to show class symbols and sub-divisional numbers or letters.

83. Draw a diagram of a classified card catalogue, showing the method of guiding it.

84. What are the principal practical objects sought by the strict classification of books on the shelves?

85. Which can be the most precise and full (a) classification of books on the shelves; or (b) classification of entries in a catalogue? State the reasons for your answer.

86. What are the relative functions of cataloguing and classification?

87. In what way does a detailed scheme of classification aid the work of book selection and book annotation?

88. What problems would a revised edition of a classification scheme create for classifiers? How might they be solved?

APPENDIX III

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